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- Does the attire of a primary care physician affect patients' perceptions and their levels of trust in the doctor?
- Insomnia and its correlates among elderly patients presenting to family medicine clinics at an academic center
- Management of asthma in adults in primary care



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Chronic respiratory diseases are neglected

Khoo EM

Guest Editor

Respiratory disorders are the top three principal causes of hospitalization and death in Malaysia.¹ The prevalence of asthma in children and adults are estimated at 8.9% to 13%²⁻³ and 6.3% respectively⁴ while prevalence of chronic obstructive pulmonary disease (COPD) are estimated at 3.4-6.5% depending on definitions used.⁵⁻⁶

Despite the associated morbidity and mortality, management of asthma and COPD remains poor. Patients with asthma were poorly educated on the disease, asthma control and self management was poor and follow up care was inadequate.^{2,7} There was under-utilisation of inhaled controller medications and overuse of oral short-acting beta 2-agonist; use of peak flow meter for monitoring of asthma was poor.^{2,8} Similarly, for COPD, there was poor disease awareness and COPD was often mislabeled as asthma by both health care workers and patients.⁹ The palliative needs of COPD are frequently unmet.¹⁰ Research has been lacking in chronic respiratory diseases in Malaysia, in particular primary care settings where the majority of patients are seen.

We need to make a concerted effort to diagnose and manage chronic respiratory diseases better. The 2018 publications of GINA and GOLD guideline on asthma and COPD diagnosis, management and prevention, and the Malaysian Clinical Practice Guidelines on management of asthma in adult, a summary of which is published in this issue, will aid health care professionals to better manage these conditions.¹¹⁻¹³ In addition, more respiratory research is needed globally to address research gaps and the unmet needs for respiratory diseases. The NIHR Global Health Research Unit on Respiratory Health (RESPIRE) is a research partnership between the University of Edinburgh and collaborators from four Asian countries – Bangladesh, India, Malaysia and Pakistan, funded by the NHS National Institute for Health Research, UK. The aim is to reduce respiratory morbidity and mortality in Asia through research, which is a step forward to bridge this knowledge gap.

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ORIGINAL ARTICLE

Does the attire of a primary care physician affect patients' perceptions and their levels of trust in the doctor?

Zahrina AZ, Haymond P, Rosanna PCG, Ho RWY, Rajini AR, Low BT, Lee PY

Zahrina AZ, Haymond P, Rosanna PCG, et al. Does the attire of a primary care physician affect patient' perceptions and their levels of trust in the doctor?. *Malays Fam Physician*. 2018;13(3); 3–11.

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Abstract

Introduction: With increasing evidence of disease transmission through doctors' white coats, many countries have discouraged doctors from wearing their white coats during consultations. However, there have been limited studies about patients' preferences concerning doctors' attire in Malaysia. This study, therefore, aimed to investigate patients' perceptions of doctors' attire before and after the disclosure of information about the infection risk associated with white coats.

Method: This cross-sectional study was conducted from 1st June 2015 to 31st July 2015 at three different primary care settings (government, private, and university primary care clinics) using a self-administered questionnaire. A 1:5 systematic random sampling method was employed to select the participants. The respondents were shown photographs of male and female doctors in four different types of attire and asked to rate their level of confidence and trust in and ease with doctors in each type of attire. Subsequently, the respondents were informed of the risk of white coat-carried infections, and their responses were reevaluated. Data analysis was completed using SPSS Version 24.0. Associations of categorical data were assessed using the Chi-Square test, while the overall change in perceptions after the disclosure of additional information was examined using the McNemar test. Results with p-values < 0.05 were considered statistically significant.

Results: A total of 299 respondents completed the questionnaire. Most of the respondents had more confidence and trust in the male (62.5%) and female (59.2%) doctors wearing white coats. A high proportion of the respondents from the government clinic (70.5%) felt more confidence in male doctors dressed in white coats (p -value = 0.018). In terms of ethnicity, male doctors in white coats were highly favored by Malays (61.0%), followed by the Chinese (41.2%) and Indians (38%) (p = 0.005). A similar preference was observed for the female doctors, whereby the highest number of Malays (60.3%), followed by the Chinese (41.2%) and Indians (40.0%) (p = 0.006), had a preference for female doctors wearing white coats. Only 21.9% of the initial 71.9% of patients who preferred white coats maintained their preference (p < 0.001) after learning of the risk of microbial contamination associated with white coats.

Conclusion: Most patients preferred that primary care doctors wear white coats. Nevertheless, that perception changed after they were informed about the infection risk associated with white coats.

Introduction

It has long been tradition for doctors to dress professionally in white coats, a universal symbol of physicians. This tradition can be traced back to Hippocrates, who stated that physicians should "be clean in person, well-dressed, and anointed with sweet-smelling unguents."¹ The white coats worn by physicians today were originally used by laboratory workers to provide a barrier against the hazardous contaminants they might have encountered at work.² While the white coats confer responsibility to and instill a sense of

professionalism in physicians, perceptions of these coats have varied among patients, whereby younger patients prefer doctors without white coats, and older patients prefer the attire. Such differences have led to numerous international studies on patients' levels of confidence in and comfort with their attending doctors based on their attire.^{3–6}

Over the past two decades, the white coat has, however, lost its popularity among physicians due to the increasing awareness that white coats harbor microorganisms and are potential sources of infection. From 1969 to

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as recently as 2014, there were approximately 30 studies that documented how such apparel can be contaminated and linked to infections.² These findings have led to various national guideline changes. For example, the National Health Service (NHS) in England, United Kingdom implemented their “bare below the elbows” policy in September 2007 for all workers in NHS medical facilities.⁷ In January 2014, new guidelines on healthcare personnel attire were also issued by the Society for Healthcare Epidemiology of America (SHEA). The guidelines called for the removal of white coats by the care providers during consultations and promoted the “bare below the elbows” approach in order to prevent pathogen transmission from white coats to patients.² In line with other international studies, one of the most important and early studies in Malaysia revealed a high prevalence of methicillin-resistant *Staphylococcus aureus* (MRSA) on doctors’ neckties.⁸

Furthermore, studies have shown that perceptions concerning white coats among patients often shift to favoring doctors without white coats after the patients have been informed of the possibility of microbial contamination on the coats.⁸⁻⁹ An editorial published in The Medical Journal of Malaysia on doctors’ attire and patient safety in 2009 highlighted concerns regarding bacterial contamination on doctors’ neckties and white coats. It further recommended that researchers examine doctors and patients’ perceptions of physicians’ attire and whether patient education could change their perceptions.¹⁰

Malaysia has a dual-sector (public and private) healthcare system. It is compulsory for primary care doctors in the public sector to wear formal attire with a white coat.¹¹ However, doctors in the private primary care setting are not bound by these compulsory rulings. Based on a literature search, there has been no published evidence concerning the current practice in Malaysia in terms of attire. Nevertheless, it has been the norm for doctors working in the government sector to wear formal attire with white coats, while the private doctors practice with or without white coats.

There have been limited studies that assess the preferences concerning doctors’ attire and the perceptions of white coats among the multi-

ethnic population of Malaysia.¹² Hence, this study aimed to determine patients’ levels of confidence, trust, and ease towards doctors based on various attire and evaluate their changes in perception, if any, after being informed about potential disease transmission through white coats.

Methods

This cross-sectional study was conducted from 1st June 2015 to 31st July 2015 in three primary care settings: (1) a university-based primary care clinic, (2) three government primary care clinics in the Klang Valley, and 3) two private primary care clinics (Kepong, Kuala Lumpur and Raub, Pahang). Patients attending these clinics who met the inclusion criteria were recruited for this study. The inclusion criteria for the study included being of age 18 or above and proficiency in reading or speaking Malay, English, or Chinese. Patients who required urgent care were excluded from this study.

A 1:5 systematic random sampling method was employed to select the participants. A trained staff person at each clinic recruited participants from their clinic’s waiting room after patient registration. The first participant at each clinic was randomly selected from the list of patients registered on the first day of data collection. The trained staff person then approached the subsequent fifth patient on the registration list after the first participant who met the inclusion criteria and asked them participate in the study. The patient was briefed and provided with an information sheet regarding the nature of the study and their right to refuse to participate. If the patient agreed to participate, they were asked to sign a consent form and complete the self-administered questionnaire. If the patient refused to consent, the next fifth patient on the day’s registration list was approached. The items on the questionnaire were explained at the request of the participants. The research centers had different registries (daily registry vs continuous registry), types of sessions (geriatric clinic, antenatal clinic, and so forth), and health record systems (electronic vs paper-based health records). To minimize sampling bias due to these differences, each center maintained or utilized a single, continuous registry of every patient attending the center during the data collection period.

A monitored trial run involving 30 volunteers

from the three types of clinics was conducted for one and a half months (from 1st June to 14th July 2015) prior to the commencement of the study. This pilot study aimed to train the staff in the recruitment process and assess the ease of use of the questionnaire. The volunteer participants had no difficulties in answering the questionnaire, and no ambiguity of the questionnaire was observed. Furthermore, the staff were demonstrably competent in following the procedure.

The questionnaire was developed initially in English and based on previous studies. It was modified further following a discussion with two researchers who were familiar with instrument development and clinical research for content validity. Subsequently, it was forward and backward translated into Malay and Mandarin by two different professional translators in each case.

The first part of the questionnaire included socio-demographic data, such as age, sex, race, educational level, occupation, and monthly income. As illustrated in Figure 1, the second part of the questionnaire contained images of male and female doctors in four different ensembles: formal attire with a white coat,

formal attire without a white coat, smart casual, and casual. For all photographs, the model, stance, position of the stethoscope, and background remained constant. Based on the images, the patients were asked to select a male and a female doctor whom they had the most confidence in, trusted the most, and felt most at ease with.

Permission was obtained from Hartmans, Lagrain, and Asch³ to adopt two questions from their questionnaire:

1. In which doctor do you have the most confidence and trust? The confidence and trust refer to the patients feeling confident and trusting the doctor who provides care to them.
2. Which doctor makes you feel most at ease? The feeling of easiness refers to the patients being comfortable instead of feeling threatened or intimidated by the doctor.

For the final part of the questionnaire, patients who chose the doctors with white coats for any of the initial two questions were asked whether their preference would change if the white coats were potential sources of infection.

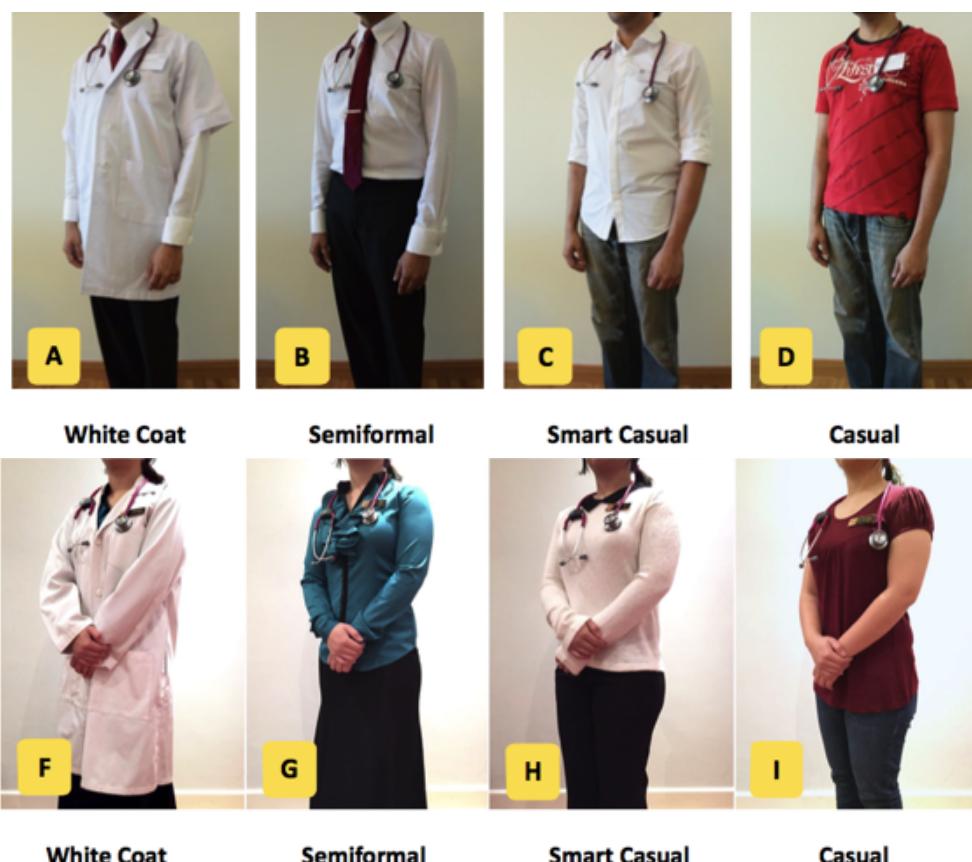


Figure 1. Pictures of male and female doctors in four different ensembles

Statistical analysis

The primary care settings and demographic characteristics were compared using the Chi-Square test via SPSS Version 24.0, where p -values <0.05 were considered statistically significant. Additionally, the respondents were grouped into two categories: those who chose the white coats versus those who chose the other options, to compare their preferences before and after the disclosure of information regarding the infection risk associated with white coats. The changes in preference among the respondents who initially favored the white coats were further analyzed using the McNemar test, with p -values <0.05 indicating a significant change.

Ethical approval

This study received ethical approval from the Medical Research and Ethics Committee of the Ministry of Health, Malaysia (approval no. NMRR-15- 219-24301). In addition, written informed consent for the research was obtained from each participant prior to conducting the study.

Results

A total of 300 questionnaires were completed by respondents from the six different sites, with one questionnaire being excluded due its incompleteness.

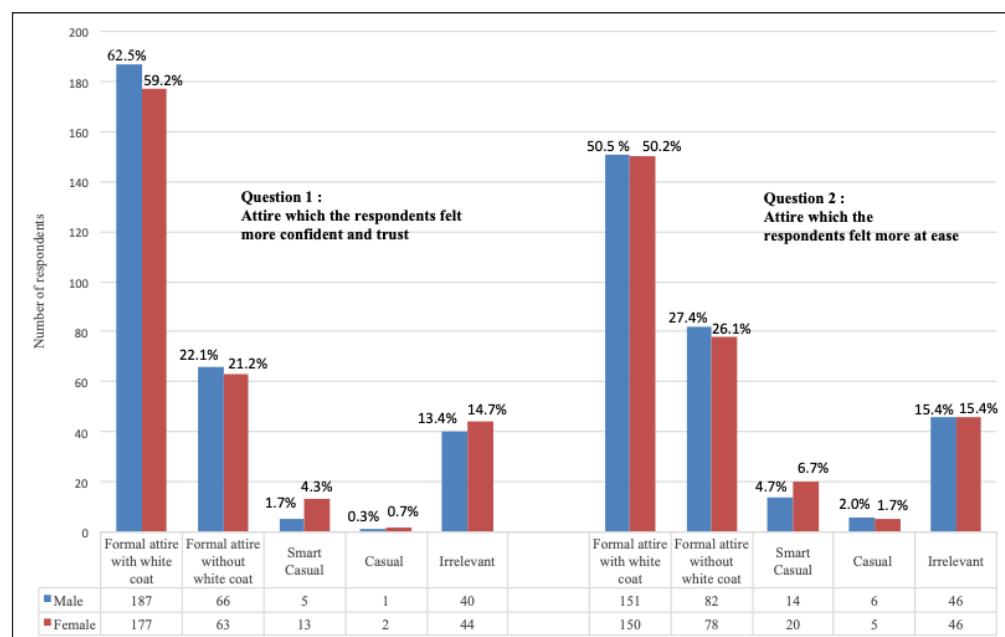
The demographic characteristics of the participants are shown in Table 1. Most of the participants were from the government primary care clinics ($n = 149$, 49.8%), followed by the private primary care clinics ($n = 100$, 33.4%) and the university-based primary care clinic ($n = 50$, 16.7%). Of the total participants, 55.9% ($n = 167$) were female and 44.1% ($n = 132$) were male. The mean age was 40.91 years \pm 15.7 (SD), and more than two-thirds of the respondents were below 50 years of age. In terms of social background, most of the respondents had an income level below RM5000 (58.3%, $n = 174$), while more than half of the respondents (55.2%, $n = 165$) had received a secondary and higher secondary education.

Table 1: Demographic Characteristics of the Study Population ($n=299$)

	N	%
Type of clinic		
Government	149	49.8
Private GP	100	33.4
University PC	50	16.7
Gender		
Male	132	44.1
Female	167	55.9
Age group (years)		
18-30	102	34.1
31-50	104	34.8
51-65	70	23.4
≥ 66	23	7.7
Race		
Malay	154	51.5
Chinese	80	26.8
Indians	50	16.7
Others	12	4.0
Income (RM)		
No income or refuse to reveal	56	18.7
5,000 and below	174	58.3
5,001 and above	69	23.1
Education level		
No formal education	2	0.7
Primary education	25	8.4
Secondary and higher secondary	165	55.2
Tertiary education	104	34.8

Figure 2 shows the respondents' preferences in terms of physician attire based on their level of confidence, trust, and ease. Overall, most of the respondents had more confidence and trust in the male ($n=187$, 62.5%) and female ($n=177$, 59.2%) doctors dressed formally with white coats. Similarly, about half of the respondents felt more at ease with both male ($n=151$, 50.5%) and female primary care physicians wearing formal attire with a white coat.

Figure 2: Attire preferences based on respondents' confidence, trust, and ease.



To explore further the perceptions of doctors' attire among patients, the respondents' choices were categorized into two major groups: the white-coat group and the non-white-coat group. The associations between the demographics of the respondents and their confidence and trust in and ease with the doctors are presented in Tables 2 and 3. The clinical setting was significantly associated with the patients' confidence and trust in the male doctors' attire. Specifically, a total of 70.5% ($n=105$) of the respondents from the government clinics, 57% ($n=57$) of the respondents from the private clinics, and 50% ($n=25$) of the respondents from the university primary care clinic felt more confident in

male doctors dressed in white coats (p -value = 0.013).

In addition, there was a significant association between ethnicity and the respondent's feelings of ease with both male and female doctors wearing white coats, as seen in Table 3. It was found that a higher number of Malays (61.0%), followed by Chinese (41.2%) and Indians (38%), felt at ease with male doctors wearing white coats (p -value = 0.005). Similarly, a higher number of Malays (60.3%), followed by Chinese (41.2%) and Indians (40%), felt at ease with female doctors dressed in white coats (p -value = 0.006).

Table 2: Associations between respondents' characteristics and feelings of confidence and trust.

		Question 1: Patient feels more confident and trusting					
		Male Doctor			Female Doctor		
		White-Coat (n)	Non-White-Coat (n)	p - value *	White-Coat (n)	Non-White-Coat (n)	p - value *
Clinic Type	Government	105(70.5%)	44(29.5%)	0.013	86(57.7%)	63(42.3%)	0.736
	Private GP	57(57.0%)	43(43.0%)		59(59.0%)	41(41.0%)	
	University PC	25(50.0%)	25(50.0%)		32(64.0%)	18(36.0%)	
Age Group	18-30	63(61.8%)	39(38.2%)	0.904	62(60.8%)	40(39.2%)	0.785
	31-50	63(60.6%)	41(39.4%)		58(55.8%)	46(44.2%)	
	51-65	46(65.7%)	24(34.3%)		44(62.9%)	26(37.1%)	
	≥66	15(65.2%)	8(34.8%)		13(56.5%)	10(43.5%)	
Gender	Male	82(62.1%)	50(37.9%)	0.894	80(60.6%)	52(39.4%)	0.659
	Female	105(62.9%)	62(37.1%)		97(58.1%)	70(41.9%)	
Race	Malay	104(64.9%)	50(35.1%)	0.287	101(65.6%)	53(34.4%)	0.073
	Chinese	47(58.9%)	33(41.3%)		42(52.5%)	38(47.5%)	
	Indian	27(54.0%)	23(46.0%)		24(48.0%)	26(52.0%)	
	Others	7(58.3%)	5(41.7%)		8(66.7%)	4(33.3%)	
Education Level	No Formal/ Primary Education	15(55.6%)	12(44.4%)	0.755	17(63.0%)	10(37.0%)	0.675
	Secondary and Higher secondary	108(65.5%)	57(34.5%)		96(58.2%)	69(41.8%)	
	Tertiary Education	64(61.5%)	40(38.5%)		63(60.6%)	41(39.4%)	

* Data analyzed with χ^2 test, p -value < 0.05 set as significant

Table 3: Associations between respondents' characteristics and feelings of ease.

		Question 2: Patient would feel more at ease					
		Male Doctor			Female Doctor		
		White-Coat (n)	Non-White-Coat (n)	p - value *	White-Coat (n)	Non-White-Coat (n)	p - value *
Clinic Type	Government	83(55.7%)	66(44.3%)	0.089	81(54.4%)	68(45.6%)	0.331
	Private GP	49(49.0%)	51(51.0%)		45(45.0%)	55(55.0%)	
	University PC	19(38.0%)	31(62.0%)		24(48.0%)	26(52.0%)	
Age Group	18-30	52(51.0%)	50(49.0%)	0.813	54(52.9%)	48(47.1%)	0.600
	31-50	51(49.0%)	53(51.0%)		47(45.2%)	57(54.8%)	
	51-65	38(54.3%)	32(45.7%)		38(54.3%)	32(45.7%)	
	≥66	10(43.5%)	13(56.5%)		11(47.8%)	12(52.2%)	
Gender	Male	66(50.0%)	66(50.0%)	0.877	68(51.5%)	64(48.5%)	0.679
	Female	85(50.9%)	82(49.1%)		82(49.1%)	85(50.9%)	
Race	Malay	94 (61.0%)	60 (38.9%)	0.005	93(60.3%)	61(39.6%)	0.006
	Chinese	33(41.2%)	47(58.8%)		33(41.2%)	47(58.8%)	
	Indian	19(38.0%)	31(62.0%)		20(40.0%)	30(60.0%)	
	Others	5(41.7%)	7(58.3%)		4(33.3%)	8(66.7%)	
Education Level	No Formal/ Primary Education	12(44.4%)	15(55.6%)	0.302	12(44.4%)	15(55.6%)	0.380
	Secondary and Higher secondary	88(53.3%)	77(46.7%)		84(50.9%)	81(49.1%)	
	Tertiary Education	51(49.0%)	53(51.0%)		53(51.0%)	51(49.0%)	

* Data analyzed with χ^2 test, p -value < 0.05 set as significant

Finally, the overall change in patients' preferences after being informed of potential disease transmission via white coats was evaluated and analyzed. There was a significant change in the respondents' choices after the disclosure of the additional information, whereby only 21.9% of the initial 71.9% patients who preferred white coats maintained their initial preferences (p -value < 0.001).

Discussion

In this study, it was observed that the patients preferred both male and female primary care doctors wearing white coats. Such preferences are consistent with the findings reported by previous studies conducted in other settings.^{4,5,13,14,15} This phenomenon could be due to the common perception that doctors wearing white coats are more competent and official, therefore resulting in more confidence and trust from the patients during consultations.^{16,17} Furthermore, the white coat facilitates the identification of authority, and it is part of the societal expectations, culture, traditional values, and beliefs of some patients.¹⁸

In addition, the study showed that white coats were highly favored by the respondents from the government clinics, with the male doctors being particularly expected to wear white coats. A plausible explanation for this observation could be that patients are more accustomed to images of male doctors wearing white coats in government clinics. Moreover, most patients in Malaysia attend government clinics, where the doctors are predominantly male.^{19,20} This finding can be compounded by the fact that it is mandatory for doctors in Malaysian government service to wear white coats.¹¹

Further, a higher proportion of Malay patients felt more at ease with doctors wearing white coats, followed by the Chinese and Indian respondents. Based on studies conducted in the United States, the influence of ethnicity on the patients' perceptions and attire preferences was similarly observed among Caucasians and African-Americans.¹⁵ Each ethnicity is heavily influenced by their own unique cultural and social factors. Such diversity may have caused differences in the reasons for consultation, the types of primary care centers visited, and the types of medical care received (acute vs. chronic) among

the different races in Malaysia.²⁰ Ethnicity could, therefore, be a contributing factor that influences the perception of doctors' attire among the various races.

Meanwhile, the attire of female doctors showed no significant influence on the patients' levels of confidence and trust in the various settings in this study. These findings contradict most previous studies.^{3,4,15} A relatively similar study conducted in Japan reported that factors such as speech and reputation play an important role in inspiring the confidence of patients, while the titles, age, and gender of a doctor were found to be less crucial.¹³ As such, it can be inferred from the findings of this study that the confidence patients had in their doctors was not solely influenced by attire, but also by many other factors which were not investigated in the present study.

Furthermore, it was showed that most respondents changed their preference from white coats to no white coats after being informed about the infection risk associated with white coats. This finding could have come about because most of the participants generally had good access to the latest information about global trends, as reflected by their younger age group (below 50 years), urban origins, and high educational attainment levels.²¹ Their change in preference for white coats could also imply their conscientiousness concerning hygienic practices.

The significant change in the perception of doctors' attire observed in this study could also be attributed to the outbreaks of contagious diseases that have occurred in the Asia-Pacific region, including Malaysia. For instance, there have been several public health emergencies arising from emerging and re-emerging diseases, such as Nipah Virus, SARS, and H1N1 in the recent years.²² The health perceptions and behaviors of the public evolved during and after these outbreaks.²³ Consequently, Malaysian society nowadays is more ready to accept and change their practices and beliefs once they have been educated adequately.

This study has many strengths. Firstly, it was conducted in three different clinical settings (government, private, and university-based primary care clinics), therefore encompassing a widespread population. Secondly, the respondents in the study constituted the three

main ethnic groups in Malaysia, with their responses being assessed using their respective languages. Such multi-ethnicity strongly represented the composition of the Malaysian population and thus increased the relevance of the research findings. Thirdly, this study was not biased against the age of the doctors or the effects of expression and countenance, as the pictures in the questionnaire did not display these aspects. Lastly, this study was the first in Malaysia to examine the patients' perceptions of doctors' attire before and after the disclosure of information about white coats potentially acting as modes of disease transmission.

However, the study has several limitations. The sample size was relatively small, with most of the respondents being patients from the government primary care clinics. Besides, the respondents were mostly in the age group of 18-50 years, implying that respondent age groups were not represented equally. Additionally, most of the respondents originated from the urban areas and were well-educated. These factors may reduce the generalizability of this study. Furthermore, the information regarding the risk of infection transmission via the white coats was not delivered in an impartial manner. The final section of the questionnaire, which asked the respondents if they would change their preferences after learning the new information, may have led the respondents to a biased answer. Therefore, changes in preference after being informed may have been pre-empted and not necessarily a result of the information provided per se. In view of the limitations, the findings of this study should be interpreted with caution.

To overcome the limitations of this study, future researchers should consider adding a cognitive debriefing following the administration of the questionnaire. Additionally, the questions should be properly worded to avoid response bias. The changes in perception regarding doctors' attire among the patients after being informed of possible contamination should be explored further in future studies. Also, more research should be conducted in other parts of Malaysia to expand the generalizability of the findings of this study to the national level. Further study would also be useful for policymakers in terms of deciding if the 'no white coat policy' should be implemented in the Malaysian healthcare system.

Conclusion

In general, the patients demonstrated a predominant preference for primary care physicians wearing white coats. The strong preference for white coats was particularly evident in the government clinical setting, with the male doctors being highly expected to dress formally and wear white coats. Furthermore, ethnicity appeared as a significant factor influencing the attire preferences of the patients, whereby most Malays regarded the white coats as the favorable attire for both male and female doctors. Nevertheless, the patients' perceptions and preferences for white coats changed significantly after the patients learned of the potential risk of white coat-carried infection. This study could serve as a starting point for more elaborate nation-based research capable of providing guidance on healthcare personnel attire and improving the guidelines for infection control in healthcare facilities.

Competing interests:

The authors declare that they have no competing interests or any possible conflicts of interest regarding the publication of this paper.

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How does this paper make a difference to general practice?

- This paper shows that patients still prefer to interact with primary care doctors wearing white coats.
- It also suggests that patients are willing to change their minds if they are educated about potential disease transmission via white coats.
- Any future policies regarding primary care doctor's attire should include patient education, which may disassociate the strong professional image of white coats and doctors.

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Insomnia and its correlates among elderly patients presenting to family medicine clinics at an academic center

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Abstract

Objective: The objective of this study is to determine the frequency and correlates of insomnia among elderly patients presenting to family medicine clinics at an academic center in Karachi, Pakistan.

Study design: This is a cross-sectional study.

Place and duration of study: The study was conducted at the Outpatient Family Medicine Clinics at Aga Khan University Hospital between February 2013 and June 2013.

Methodology: Patients 60 years old and above were recruited (n=152) through non-probability consecutive sampling. Information was collected on a pretested structured questionnaire on demographics, insomnia symptoms, medical co-morbidities, lifestyle factors and sleep disorders. Data was analyzed on SPSS 19. Proportions and the Chi-Square test were used in the analyses, along with binary logistic regression.

Results: The mean age of the participants was 65.68 years, and 38.80% of the participants were male and 61.20% were female. The prevalence of insomnia was 42.1%. It was more common in women than in men (64.10% vs. 35.9%). Increasing age [OR_{adj}: 4.54; 95%CI: 1.85-11.17], being divorced/widowed [OR_{adj}: 10.26; 95%CI: 2.79-37.73] and having an average household income of over Rs.50,000, were significantly related to insomnia. The other factors associated with insomnia were Gastro Esophageal Reflux Disease [OR_{adj}: 4.30; 95% CI: 1.67-11.04], depression [OR_{adj}: 2.88, 95% CI: 1.13-7.33], caffeine consumption [OR_{adj}: 6.50; 95% CI: 2.27-18.57], and cigarette smoking close to bed time [OR_{adj}: 4.78; 95% CI: 0.88-25.90].

Conclusion: The study showed that older adults with multiple diseases were at high risk of insomnia. Certain life style practices enhanced the risk; hence, physicians should incorporate sleep history and tailor treatment to target both insomnia and related factors to optimize quality of life.

Introduction

Insomnia, a common complaint among the elderly population, impacts quality of life a great deal.¹ Changes in sleep architecture occur with age but do not result in insomnia per se. Geriatric insomnia is multifactorial and related to underlying comorbid conditions, psychiatric disorders and certain lifestyle practices.² Insomnia results in difficulty in sustaining attention, slow responses, a decrease in cognitive ability, daytime sleepiness and memory impairment. These symptoms not only increase the incidence of falls, fractures and automobile accidents, potentially resulting in long-term morbidity, mortality and utilization of health care resources, but also decrease the pain threshold, which hampers the elderly in accomplishing daily tasks and enjoying family and friends.³ Insomniacs have shorter survival

and are twice as likely to die of heart attacks and strokes.^{4,5}

There is a global demographic aging trend due to advancements in medical technology.⁴ As is true elsewhere, the elderly population in Pakistan is increasing. According to the World Health Organization, six percent of Pakistan's population is above 60 years of age, and this percentage is expected to double by the year 2025.⁶ Life expectancy has also risen by almost three decades in the last 50 years and will reach 72 years by 2023,⁷ hence, there will be a significant elderly population with varying numbers of chronic illnesses and psychosocial issues manifesting in insomnia and vice versa. There is considerable variation in the prevalence of insomnia locally, regionally and internationally.⁸ Moreover, insomnia is an under-recognized and under-reported public health issue due to a lack of

awareness among patients as well as limited training of primary care physicians in terms of diagnosing and appropriately managing the condition.⁹ This study aims to estimate the actual magnitude of the problem and to determine various correlates of insomnia among the elderly population.

Methods

This cross-sectional study was conducted from February 2013 to June 2013 at the outpatient family medicine clinics of Aga Khan University Hospital, Karachi, Pakistan. Patients 60 years and above visiting family medicine clinics who consented to participate were recruited through a non-probability consecutive technique. Patients fulfilling the eligibility criteria were approached in the waiting area of the clinic and written informed consent were obtained from them after explaining the study protocol. Elderly patients with dementia or any other mental illness which prevented them from understanding and giving consent were excluded from the study.

Ethical approval was given by the Ethical Review Committee of the Aga Khan University Hospital, Karachi (2185-FM-ERC-12). Written informed consent was obtained from all of the participants. After an extensive literature search and consensus by study investigators, a structured questionnaire was developed and pre-tested on a group of volunteer patients representing 5% of the final sample size. The questionnaire had three parts: Section A dealt with demographic characteristics (age, gender, marital status, employment status, educational level, household monthly income, Body Mass Index [BMI]), Section B included specific insomnia questions based on the Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition),¹⁰ and Section C consisted of factors related to insomnia, medical co-morbidities, use of tobacco or/and caffeinated drinks, exercise and intake of sleeping pills and other medications.

The outcome variable insomnia was present in the study if an individual had any one of the below-mentioned symptoms at least three times a week over last three months.¹⁰

- Difficulty in falling asleep (30 minutes or more),
- Maintaining sleep (three or more nighttime awakenings),
- Early morning awakenings (between 3:00-5:00 am)
- Feeling unrefreshed upon getting up in the morning.

Patients with insomnia were referred back to their primary physician for further evaluation of their sleep problem and co-morbid conditions. The sample size was calculated with the World Health Organization (WHO) software for sample size determination. The prevalence of insomnia and related factors from the literature was found to be in the range of 9.9% to 70%^{11,12} using these values with a 95% confidence interval and bound of error of 5%, the sample size computed was 138. After adding 10% for non-responders, the final sample size was 152 study participants.

Data was entered in SPSS version 19 by two different data entry personnel to maintain quality and avoid mistakes in data entering. Baseline information on demographics was analyzed using descriptive statistics. For continuous variables, the means and standard deviations were calculated. Correlates (medical co-morbidities, lifestyle factors) of insomnia among the elderly were identified using binary logistic regression. At the univariate level, co-variates that showed p-values of ≤ 0.25 were included in the multivariable analysis for adjustment. Results were reported in the form of adjusted odds ratios, confidence intervals and p-values. All analyses were two-tailed, and p-values of 0.05 or less were considered to be statistically significant.

Results

There were a total of 152 participants. The demographic characteristics of the study participants are shown in Table 1. Insomnia was present in 64 participants (42.1%), out of which 23 (35.9%) were male and 41 (64.1%) were female.

Table 1: Demographic characteristics of study participants (*n*= 152)

Variable	n	%
Age (mean age= 65.68 years, SD= 5.86)		
60-65 years	97	63.8%
66 years or more	55	36.2%
Gender		
Male	59	38.8%
Female	93	61.2%
Marital status		
Married	125	82.2%
Widowed/Divorced	27	17.8%
Employment status		
Employed	15	9.9%
Unemployed/Retired/Housewife	137	90.1%
Average household monthly income		
< 10,000	45	29.6%
10,000 to less than 20,000	49	32.2%
20,000 to 50,000	25	16.4%
More than 50,000	33	21.7%
Educational level		
No formal education	39	25.7%
Primary(1-5 years)	44	28.9%
Secondary (6-10 years)	25	16.4%
Intermediate	14	9.2%
Graduate and above	30	19.7%
*BMI(Body Mass Index)		
Below 18.5	39	25.7%
18.5 to 22.9	20	13.2%
23 and above	93	61.2%

* BMI: Asian cutoffs

Table 2 presents the demographic factors associated with insomnia among elderly. Increasing age [OR_{adj}: 4.54; 95%CI: 1.85-11.17], being divorced/widowed [OR_{adj}: 10.26; 95%CI: 2.79- 37.73] and having an average household monthly income of over Rs.50, 000 [OR: 16.79; 95%CI: 4.47-63.01] were significantly related to insomnia among the elderly. Gender, educational status, employment status and BMI did not show significant associations.

Table 2: Demographic factors associated with insomnia among the elderly

Variable	Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)	P-Value
Age			
60-65 years	Ref	Ref	
66 years and more	6.10 (2.95-12.63)	4.54 (1.85-11.17)	0.001
Gender			
Male	Ref		
Female	0.81 (0.41-1.57)	NS	
Marital status			
Married	Ref	Ref	
Widowed/Divorced	11.71 (3.82-36.30)	10.26 (2.79- 37.73)	<0.001
Employment status			
Employed	Ref		
Unemployed/Retired/Housewife	1.06 (0.51-2.18)	NS	

Variable	Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)	P-Value
Average household monthly income			
< 10,000	Ref	Ref	
10,000 to less than 20,000	1.59 (0.61- 4.17)	2.11 (0.69-6.43)	
20,000 to 50,000	5.09 (1.73-14.92)	5.89 (1.60-21.65)	
More than 50,000	17.90 (5.71-56.68)	16.79 (4.47-63.01)	<0.001
Educational level			
No formal education	Ref		
Primary(1-5 years)	0.38 (0.14-1.03)		
Secondary (6-10 years)	0.18 (0.06-0.51)		
Intermediate	0.28 (0.09-0.85)		
Graduate and above	0.37 (0.10-1.38)		
*BMI			
Below 18.5	Ref	Ref	
18.5 to 22.9	0.85 (0.26-2.74)	0.38 (0.08-1.74)	
23 and above	1.87 (0.85-4.09)	1.20 (0.44- 3.29)	0.263

* BMI: Asian cutoffs

Ref: Reference category

The insomnia symptoms observed among study participants are shown in Table 3. In this study, 12.5% of the elderly participants had one insomnia symptom, 34.4% had two, 31.3% had three and 21.9% had four insomnia symptoms.

Table 3: Frequency of Insomnia symptoms among study participants (n= 152)

Variable	Frequencies & Percentages	
	Yes	No
Insomnia	64 (42.1%)	88 (57.9%)
Difficulty initiating sleep of duration \geq 30 minutes at least three times a week	45 (29.6%)	107(70.4%)
Difficulty in maintaining sleep with \geq three awakenings at least three times a week	51 (33.6%)	101(66.4%)
Early morning awakening (between 3:00-5:00 am) at least three times a week	35 (22.0%)	117(77.0%)
Waking unrefreshed at least three times a week (non-restorative sleep)	37 (24.3%)	115(75.7%)

Table 4: Sleep Disorders related to insomnia among study participants (n=152)

Variables	Insomnia present	Insomnia absent	P-value
Restless leg syndrome	34(68.0%)	16(32.0%)	<0.001
Snoring at night	24(53.3%)	21(46.7%)	0.069
Sleep apnea	9(75.0%)	3(25.0%)	0.016
^e Circadian rhythm shift	24(88.9%)	3(11.1%)	<0.001

^eFeeling sleepy early in the evening between 7:00-8:00 pm at least three times a week

The associations of life style factors, co-morbidities and drug usage with insomnia is presented in Table 5. Caffeine consumption [OR_{adj}: 6.50; 95% CI: 2.27-18.57] and cigarette smoking close to bedtime [OR_{adj}: 4.78; 95% CI: 0.88-25.90] were significantly associated with insomnia. However, factors such as exercise, sleeping pill usage more than once a week and medication usage of more than four drugs daily were not statistically associated with insomnia.

The medical co-morbidities which showed positive associations with insomnia were Gastro Esophageal Reflux Disease (GERD) [OR_{adj}: 4.30; 95% CI: 1.67-11.04] p-value 0.002 and depression [OR_{adj}: 2.88, 95% CI: 1.13-7.33] p value 0.026. Nevertheless, diseases such as hypertension (p-value= 0.363), arthritis (p-value=0.191), diabetes, respiratory diseases, cardiovascular diseases and previous history of stroke did not show statistically significant relationships with the outcome, i.e., insomnia.

Table 5: Life style factors, co-morbidities and drug usage (sleeping pills and other medications) relationships with insomnia among study participants (n= 152)

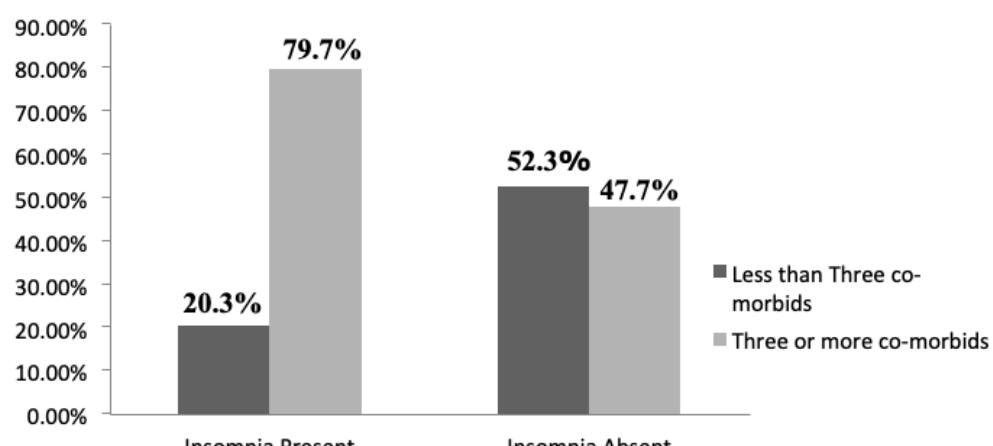
Variable	Insomnia present	Insomnia absent	Unadjusted Odds Ratio (95% CI)	Adjusted Odds Ratio (95% CI)	P-Value
Caffeine intake within 2 hours prior to going to bed	58(55.8%)	46(44.2%)	8.82(3.45-22.56)	6.50 (2.27-18.57)	<0.001
Cigarette smoking within 2 hours prior to going to bed	2(14.3%)	12(85.7%)	4.89(1.05-22.69)	4.78 (0.88-25.90)	0.062
Exercising >3 times a week for at least 30 minutes [^]	18(40.9%)	26(59.1%)	1.07(0.52-2.18)	NS	
Sleeping pills usage > once a week	16(37.2%)	27(62.8%)	1.32 (0.64-2.74)	NS	
Medication usage >4 drugs daily ^s	60(42.3%)	82(57.7%)	1.09 (0.29-4.06)	NS	
Hypertension	44(37.9%)	72(62.1%)	2.04 (0.96-4.36)	1.52 (0.61-3.79)	0.363
Diabetes	27(32.1%)	57(67.9%)	2.52 (1.30-4.88)	NS	
Heart disease (IHD)	16(35.6%)	29(64.4%)	1.47 (0.71-3.02)	NS	
Respiratory Disease (Asthma, COPD)	11(57.9%)	8(42.1%)	2.07 (0.78-5.50)	NS	
Stroke	3(33.3%)	6(66.7%)	1.48 (0.35-6.18)	NS	
Arthritis	38(61.3%)	24(38.7%)	3.89 (1.96-7.73)	1.79 (0.74-4.28)	0.191
Benign Prostatic Hypertrophy (men)	41(45.1%)	50(54.9%)	2.05 (0.97-4.31)	NS	
Nocturia (women)	23(40.4%)	34(59.6%)	3.63 (1.58-8.37)	NS	
GERD	27(75.0%)	9(25.0%)	6.40 (2.73-14.97)	4.30(1.67-11.04)	0.002
Depression	31(66.0%)	16(34.0%)	4.22 (2.036-8.77)	2.88(1.13-7.33)	0.026

[^] Walking/jogging (aerobics) exercise three or more times a week for at least 30 minutes

^s Any prescription drugs used for different ailments

NS: Not significant at a p-value of 0.05

Figure 1: Relationship between co-morbid conditions and insomnia among study participants (n= 152)



There was a statistically significant relation of comorbid conditions and insomnia among elderly (p-value <0.001).

Discussion

The aim of this study was to estimate the burden of insomnia among the elderly and the factors related to it. To date, there have been limited studies conducted in Pakistan highlighting insomnia in the context of its factors. The results of this study suggest that 42.1% of the participants met the criteria of insomnia.

The prevalence of insomnia reported in literature shows wide variation. In Asia, studies on the Chinese ageing population show that 6-41% of the elderly experience insomnia.¹³ In Egypt, 50% of the patients older than 60 years old had insomnia.¹⁴ An Iranian study conducted in six hospital clinics with 696 individuals reported a much higher prevalence rate of 62.1%.¹⁵ Previous local studies in which insomnia was used as a variable have reported insomnia rates in the elderly of between 25.5% and 34.8%.^{16,17} This variance in the prevalence of insomnia appears to be the result of the lack of standardization in the classification of insomnia. Moreover, even when using the same classification system, prevalence rates have varied between 10-37% because of differences in the frequency of occurrence of symptoms and length of time over which they are assessed.¹⁸ In the current study, one out of four insomnia symptoms occurring at least three times a week was used to categorize insomnia, which, in itself, is a strict criterion.

Factors which showed increased risk of insomnia among the elderly included: increasing age, being divorced/widowed, consuming caffeine and smoking cigarettes two hours before bedtime and having comorbidities such as GERD and depression. Studies suggest that there is a strong association between age and insomnia, which is evident from the study results. In this study, increasing age [OR_{adj}: 4.54; 95%CI: 1.85-11.17] was found to be a risk factor for insomnia among the elderly. However, epidemiological studies of three communities of elderly people with 9,000 participants concluded that the aging process itself was not responsible for insomnia but that chronic medical conditions, depressed moods, and perceived health status were responsible for incident insomnia.¹⁹ Similarly, another study carried out by Tsou in Taiwan found that aging was associated with a decreased risk of insomnia, even after controlling for

covariates.¹³ Therefore, age itself may not be a contributing factor to insomnia in otherwise healthy elderly people, and the relationship between insomnia and age could be explained by other factors.

A survey by the American National Sleep Foundation (NSF) revealed that approximately two thirds of the participants with insomnia had four or more medical conditions, whereas one third of the participants reporting insomnia had no associated medical conditions.²⁰ The current study has also demonstrated similar results, as 79.7% of insomniacs had three or more comorbidities, compared to 20.33% of those who reported insomnia having less than three co-morbid conditions. In the current study, the results were not statistically significant with respect to commonly occurring comorbidities, such as diabetes, hypertension and arthritis. Statistically insignificant associations were also found with previous history of stroke and cardiovascular and respiratory diseases, which could be attributed to the sample being collected in the primary care set up, where there are relatively smaller numbers of patients with these co-morbidities.

A study conducted on the American general population by Ohayon concluded that insomnia was significantly associated with chronic pain, restless leg syndrome, obstructive sleep apnea, circadian rhythm shift (advanced sleep phase syndrome), GERD, and nocturia.²¹ Similar associations were also revealed by the 2005 NSF poll.²² These results are consistent with the current study, with the exception of nocturia, as it did not have a significant relation with insomnia. A strong association was observed between depression and insomnia [ORadj: 2.88, 95% CI: 1.13-7.33] in the current study, and this relation has been found in several other studies, as well.^{14,15} Previous studies suggest that women are more likely to experience insomnia throughout their lives.^{12,13} similar results have been found in this study, as insomnia was more common among women as compared to men (61.2% vs. 38.8%). Earlier studies have shown a positive association between being divorced/ widowed and insomnia,¹¹⁻¹³ the same trend was observed in this study as well. In the literature, insomnia has been reported to be more prevalent among those with less education, in lower income groups and who are unemployed or retired.^{12,15} However, in

this study, we found contrasting results, as insomnia was more prevalent among graduates (31.3%) and the relatively affluent group (>50,000 rupees monthly income), whereas employment status was not statistically related to insomnia (p -value=0.86). The reason for this non-association could be because a high proportion of women in the current study were homemakers.

A Malaysian study published in the Asia-Pacific Journal of Public Health reported that consuming caffeinated beverages and smoking cigarettes close to bedtime increases the risk of insomnia.¹¹ This is congruent with our study results, as 20.3% of the insomniacs were consuming caffeinated beverages close to bedtime. Similarly, smoking within two hours prior to going to bed was marginally associated with insomnia (p -value=0.062). This trend may have been observed because a limited number of elderly reported of smoking (13 or 8.6%). Evidence suggests that long-term use of sleeping pills leads to rebound insomnia due to the eventual loss of their therapeutic effect.¹¹ This phenomenon was not observed in the current study, as few participants reported sleeping pill usage of more than once a week (25.70% vs. non-users at 74.3%). Insomnia could be a side effect of many drugs used to treat other medical problems. A study conducted among elderly Taiwanese showed that taking four or more prescription drugs daily for other co-morbid conditions resulted in insomnia in 74.3% of the participants,¹³ and a similar association of insomnia with an increasing number of drugs for various medical problems was seen in a study conducted on Egyptian community-dwelling elders.¹⁴ Nonetheless, such associations were not observed in the current study.

This study has several potential limitations. Since the respondents of the study were limited to those utilizing the family medicine clinics at a single teaching hospital, the sample may not be representative of the entire elderly population. This was a cross-sectional study; therefore, causality cannot be established. In this study, we did not use a validated questionnaire, which can lower the credibility of the study. Moreover, to reduce the chances of recall bias, the participants were asked

about their symptoms over the previous three months, as proposed in the Diagnostic and Statistical Manual of Mental Disorders 5th edition (DSM V).¹⁰ In addition, we have not inquired about the duration of sleeping pills usage among the study participants, which might have led to statistically insignificant results in the current study.

Further longitudinal studies are needed to identify the nature and direction of the relationship between insomnia and its correlates and the long-term impact on sufferers and the health care system.

Conclusion

The findings of the current study show that insomnia is a common complaint among elderly people. Increasing age; being divorced/widowed; having underlying medical conditions, such as depression and GERD; and consumption of caffeinated beverages and cigarette smoking close to bedtime puts the elderly at increased risk of insomnia. The impairment in social and occupational functioning resulting from disturbances in sleep should be further assessed.

In order to address this important issue, primary health care needs to be reoriented, and primary health care physicians ought to be trained to screen older individuals for insomnia and create awareness among this population to seek timely help for insomnia and not assume it is a natural part of aging.

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Conflicts of interest

The authors do not have any potential conflicts of interest.

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Management of asthma in adults in primary care

Ban AYL, Omar A, Chong LY, Lockman H, Ida Zaliza ZA, Ali IAH, Jaya M, Leong SW, Mazapuspavina MY, Yusof MAM, Zim MAM, Nor Azila MI, Jamal SM, Yoon CK, Malek Abdol Hamid ZI

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Abstract

Asthma is a chronic inflammatory disease of the airway which is often misdiagnosed and undertreated. Early diagnosis and vigilant asthma control are crucial to preventing permanent airway damage, improving quality of life and reducing healthcare burdens. The key approaches to asthma management should include patient empowerment through health education and self-management and, an effective patient-healthcare provider partnership.

Introduction

Asthma is a common medical condition in adults, with a prevalence of 4.5% in Malaysia, based on the National Health and Morbidity Survey 2006. It is an inflammatory disease of the airway which is triggered by external stimuli in genetically-predisposed individuals, leading to mucus secretion, bronchoconstriction and airway narrowing.

The most common symptom is a chronic cough. Misdiagnoses or underdiagnoses cause persistent airway inflammation, airway remodeling, and subsequently, fixed airway obstruction. Therefore, it is important for healthcare professionals to diagnose and manage asthma confidently.

Risk Factors

Asthma is a multifactorial disease brought about by various familial and environmental influences, as seen in Table 1 below:

Table 1. Risk factors for asthma

Genetic factors
Environmental factors
<ul style="list-style-type: none"> • Smoking • Air pollution • Paint • Pesticides
Other risk factors/co-morbidities
<ul style="list-style-type: none"> • Overweight or obese • Gastroesophageal reflux disease • Nasal blockage, rhinorrhea, and allergic rhinitis • Elevated fractional exhaled nitric oxide and positive skin prick test

Diagnosis

The diagnosis of asthma is based on a combination of clinical features suggestive of reversible airway obstruction supported by investigations, as shown in Tables 2 and 3. A response to treatment may support the diagnosis; however, a lack of response does not exclude asthma.

Table 2. Clinical features of asthma

Common symptoms	<ul style="list-style-type: none"> • Cough • Wheeze • Chest tightness • Shortness of breath
Symptom variability	<ul style="list-style-type: none"> • Episodic symptoms • Diurnal symptoms • Symptoms after/during exercise
Triggers	<ul style="list-style-type: none"> • Common cold (viral infection) • Allergens, e.g. dust mites, pets • Cold weather • Irritants <ul style="list-style-type: none"> • smoke • haze • strong smells, i.e. perfumes, cleaning solutions • exhaust fumes
History of atopy	<ul style="list-style-type: none"> • Eczema • Allergic rhinitis
Family history	<ul style="list-style-type: none"> • Asthma • Allergic rhinitis • Eczema
Physical examination	<ul style="list-style-type: none"> • Eczema • Use of accessory muscles • Hyperinflation • Audible wheeze • Ronchi on auscultation

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Table 3. Investigations for asthma

Investigation	Description
<i>Demonstration of airway obstruction</i>	
Spirometry	<ul style="list-style-type: none"> A FEV₁ (forced expiratory volume in 1 second)/FVC (forced vital capacity) ratio of <70% is a positive test for obstructive airway disease.
<i>Demonstration of airway obstruction variability</i>	
Bronchodilator reversibility	<ul style="list-style-type: none"> An improvement in FEV₁ of ≥12% AND ≥200 ml is a positive bronchodilator reversibility test.
Other method	<ul style="list-style-type: none"> An increase in FEV₁ >12% and >200 ml [or peak expiratory flow (PEF) >20%] from baseline after four weeks on inhaled corticosteroids (ICS) is a positive test. Patient must not have respiratory infections.
Peak flow charting	<ul style="list-style-type: none"> Peak flow monitoring over 2 - 4 weeks. Calculate mean variability. Daily diurnal PEF variability is calculated from twice daily PEFs as [(day's highest - day's lowest)/mean of day's highest and lowest] and averaged over one week. Variability ≥20% or diurnal variation >15% on >3 days/week indicates a positive test.

General Principles of Management

The aims of management are to achieve good asthma symptom control and minimise future risk of exacerbations. The partnership between the patients/caregivers and healthcare providers is important in ensuring the success of the management. The patient's preferences for treatment, ability to use an inhaler correctly, side effects and cost of medications should be taken into consideration during the treatment process.

Asthma Self-Management

The patient's active participation is important in asthma management. All patients should be made aware of the components of asthma self-management, which include:

- self-monitoring of symptoms and/or PEF
- a written asthma action plan (WAAAP) for optimisation of asthma control through self-adjustment of medications

- a regular medical review by healthcare providers

A home nebuliser should be avoided, as it leads to underestimation of the severity of an acute exacerbation of asthma.

Stable Asthma

Stable asthma is defined as the absence of symptoms, no limitations on activities and not requiring any relievers in the last four weeks.

a. Assessment of asthma control

Asthma control can be assessed by using Asthma Control Test (ACT) scores or asking recommended questions, as shown in Table 4 below.

Table 4. Assessment of asthma symptom control

Asthma symptom control			Level of asthma symptom control		
In the past four weeks, has the patient had:			Well-controlled	Partly controlled	Uncontrolled
• Daytime asthma symptoms more than twice/week?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	None of these	1 - 2 of these	3 - 4 of these
• Any night waking due to asthma?	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
• Reliever needed for symptoms more than twice/week?	Yes <input type="checkbox"/>	No <input type="checkbox"/>			
• Any activity limitation due to asthma?	Yes <input type="checkbox"/>	No <input type="checkbox"/>			

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b. Assessment of the severity of future risks

Assessment of the risk factors for a poor asthma outcome is important in treatment adjustments and prediction of exacerbation. Refer to Table 5 for more details.

Table 5. Investigations for asthma

Risk factors for poor asthma outcome	
<ul style="list-style-type: none"> • Assess risk factors at diagnosis and periodically (1 - 2 years) • Measure FEV₁ at the start of treatment and periodically 	
Independent risk factors	<p>Having one or more of these risk factors increases the risk of exacerbations, even if symptoms are well-controlled:</p> <ul style="list-style-type: none"> • Uncontrolled asthma symptoms • ICS not prescribed, poor ICS adherence, incorrect inhaler technique • High short-acting β₂-agonists (SABA) use • Low FEV₁, especially if <60% predicted • Major psychological or socioeconomic problems • Exposures: smoking; allergen exposure, if sensitised • Co-morbidities: obesity, rhinosinusitis, confirmed food allergy • Sputum or blood eosinophilia, elevated fractional exhaled nitric oxide in allergic adults • Pregnancy • Ever being intubated or in intensive care for asthma • Having ≥1 severe exacerbations in the last 12 months
Risk factors for fixed airflow limitation	<ul style="list-style-type: none"> • Lack of ICS treatment • Exposure to tobacco smoke • Noxious chemical or occupational exposures • Low FEV₁ • Chronic mucus hypersecretion • Sputum or blood eosinophilia
Risk factors for medication side effect	<ul style="list-style-type: none"> • Systemic: frequent oral corticosteroids (OCS); long-term, high-dose ICS; taking P450 inhibitors, e.g. itraconazole, ketoconazole, etc. • Local: high-dose or potent ICS, poor inhaler technique

c. Treatment

The goal of asthma treatment is to achieve and maintain symptom control. This is done using a stepwise approach, as shown in Figure 1. Any of the following issues should be addressed before considering treatment adjustment:

- inhaler technique
- adherence to medications
- modifiable risk factors
- presence of co-morbidities

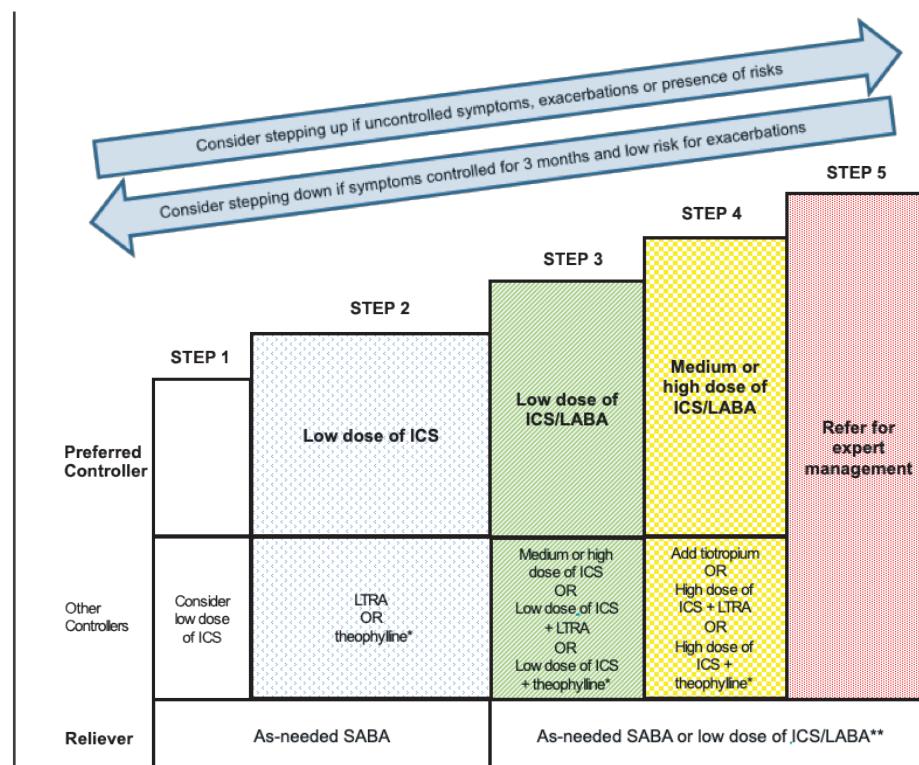


Figure 1. Stepwise treatment ladder in stable asthma

- **Reliever**

Inhaled SABA are the reliever of choice in stable asthma. Oral SABA should be avoided in asthma due to their side effects.

A low dose of budesonide/formoterol or beclometasone/formoterol may be used as a single inhalant for maintenance and reliever therapy in moderate to severe asthma.

Inhaled long-acting β_2 -agonists without ICS should not be used in reliever monotherapy in stable asthma.

- **Controller (in addition to as-needed reliever inhaler)**

- o ICS are the preferred controller therapy in asthma.
- o Initiation of ICS should not be delayed in symptomatic asthma.
- o Low-dose ICS should be considered in steroid-naïve, symptomatic asthma.
- o Long-acting β_2 -agonists should not be used as controller monotherapy without ICS in asthma.

- o Leukotriene receptor antagonists as add-on can be beneficial in patients with concomitant seasonal allergic rhinitis and asthma.
- o The soft-mist inhaler tiotropium may be used as add-on therapy in patients with asthma that is not well-controlled with medium- or high-dose ICS.
- o Patients with difficult-to-control asthma should be referred to a respiratory physician.

Non-Pharmacological Treatment

Non-pharmacological treatments may improve symptom control and/or reduce future risk of asthma exacerbation. This includes smoking cessation, vaccination and weight loss management.

Acute Exacerbation of Asthma

Acute exacerbation of asthma is defined as a progressive or sudden onset of worsening symptoms. Status asthmaticus is a life-threatening and medical emergency situation.

a. Assessment of severity and management

Rapid clinical assessment of severity (refer to Table 6) should be performed in all acute exacerbation of asthma. Treatment should be initiated immediately based on the severity of the asthma (refer to Algorithm 1).

Table 6. Level of severity of acute exacerbation of asthma

Severity	Clinical features	Clinical parameters
Mild to moderate	<ul style="list-style-type: none"> Speaks in phrases Sits up Not agitated 	<ul style="list-style-type: none"> Respiratory Rate (RR): 20 - 30/min Pulse rate (PR): 100 - 120/min O₂ saturation: 90 - 95% PEF: >50% predicted or best
Severe	<ul style="list-style-type: none"> Speaks in words Sits forward Agitated Accessory muscles used 	<ul style="list-style-type: none"> RR: >30/min PR: >120/min O₂: Saturation <90% PEF: <50% predicted or best
Life-threatening		Severe asthma with ANY OF THE FOLLOWING:
	<ul style="list-style-type: none"> Drowsy Confused Exhaustion Cyanosis Hypotension Silent chest Poor respiratory effort 	<ul style="list-style-type: none"> PEF: <33% PaO₂: <60 mmHg Normal (30 - 45 mmHg) or raised PaCO₂

In acute exacerbation of asthma, inhaled β₂-agonists are the first-line treatment.

- In mild to moderate exacerbations, a pressurised metered dose inhaler with a spacer is the preferred method of delivery.
- In severe and life-threatening exacerbations, continuous delivery of nebulised oxygen-driven β₂-agonists should be used.

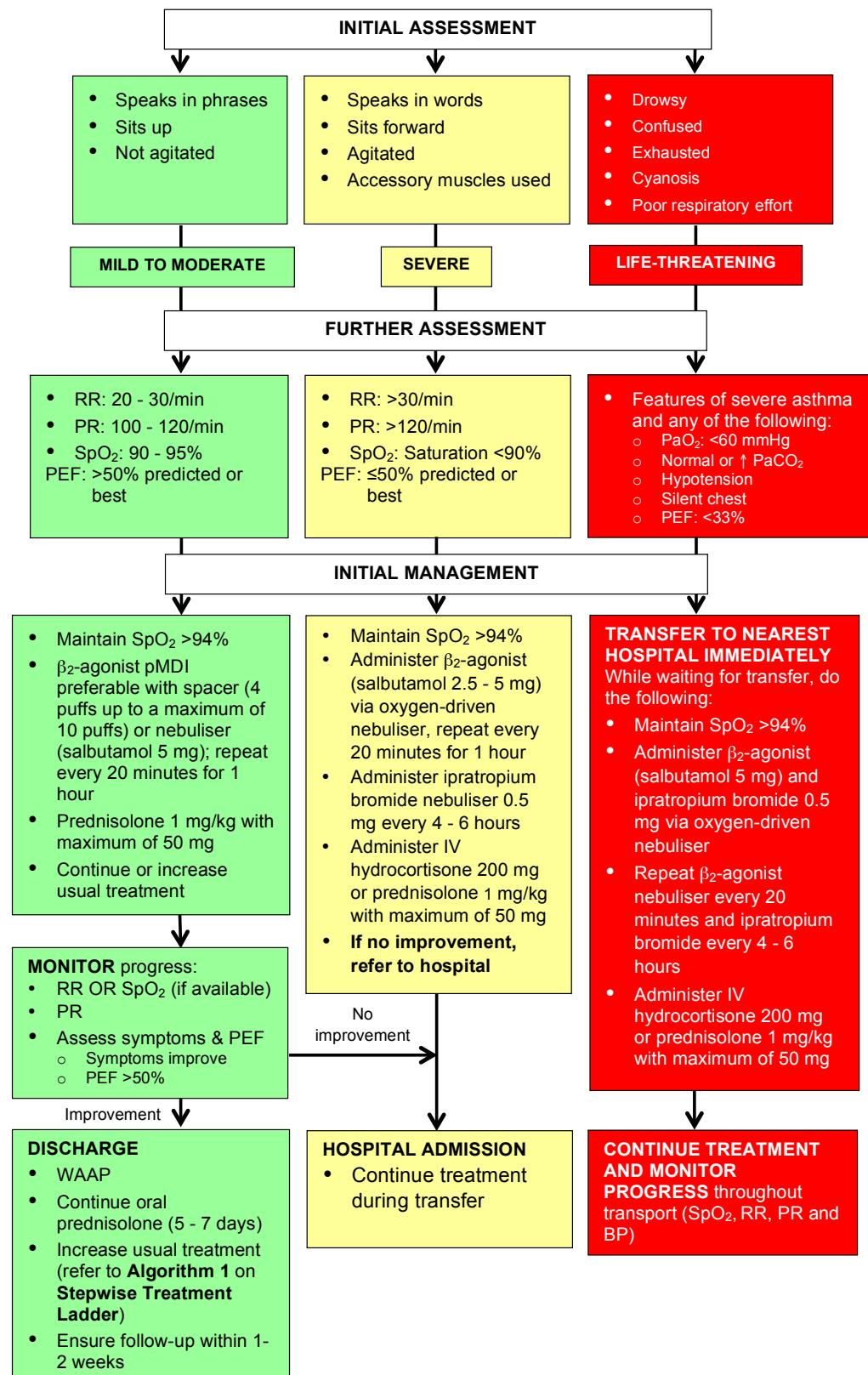
Systemic corticosteroids should be given to all patients with acute exacerbation of asthma. They should be continued for 5 to 7 days. Asthma patients prescribed OCS should continue their regular ICS.

b. Criteria for admission/discharge

All patients with severe, life-threatening asthma and those with PEF<75% personal best or predicted one hour after initial treatment should be admitted. The following factors may be considered for admission:

- persistent symptoms
- pregnancy
- previous near-fatal asthma attack
- deteriorating PEF
- living alone/socially isolated
- persisting or worsening hypoxia
- psychological problems
- exhaustion
- physical disability or learning difficulties
- drowsiness, confusion or altered conscious state
- asthma attack despite recent adequate steroid treatment
- respiratory arrest

Patients with resolution of symptoms and PEF >75% personal best or predicted one hour after initial treatment may be discharged home with a WAAP.

Algorithm 1. Management of acute asthma in primary care

Referral

A referral to a specialist with experience in asthma should be made for asthma patients with the following conditions:

- diagnosis of asthma is not clear
- suspected occupational asthma
- poor response to asthma treatment
- persistent use of high-dose ICS without being able to taper off
- symptoms remain uncontrolled with persistent use of high-dose ICS
- persistent symptoms despite continuous use of moderate- to high-dose ICS combined with LABA
- severe/life-threatening asthma exacerbations
- asthma in pregnancy
- asthma with multiple co-morbidities

Acknowledgement

Details of the evidence supporting the above statements can be found in the Clinical Practice Guidelines on the Management of Asthma in Adults 2017, available on the following websites: Ministry of Health Malaysia: <http://www.moh.gov.my> and Academy of Medicine: <http://www.acadmed.org.my>. Corresponding organisation: CPG Secretariat, Health Technology Assessment Section, Medical Development Division, Ministry of Health Malaysia, contactable at htamalaysia@moh.gov.my

CASE REPORT

Gonococcal conjunctivitis: A case report

Anuar N, Idris NS

Anuar N, Idris NS. Gonococcal conjunctivitis: A case report. *Malays Fam Physician*. 2018;13(3): 27–28.

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Case Summary

We report a case of acute gonococcal conjunctivitis in a 36-year-old woman who presented with eye redness and a history of discharge for one month. Prior to presenting to us, she was treated for bacterial conjunctivitis with three courses of local antibiotics by three different clinics after brief assessments and without improvement. The final diagnosis of gonococcal conjunctivitis was made after a complete history was elicited and supported by the presence of *Neisseria Gonorrhoeae* in the eye swab culture test. She and her sexual partner were treated successfully with intramuscular Ceftriaxone and oral Azithromycin. This case highlights the importance of complete history taking, including sexual history, which translates into early recognition and treatment, thus preventing complications.

Introduction

Due to the increased incidence of genitourinary-related, sexually-transmitted illnesses, gonococcal conjunctivitis is no longer uncommon in adults. Proper sexual history is mandatory in each patient presenting with purulent eye discharge^{1,2}. This will aid the doctor in coming up with a proper diagnosis and treatment, which is crucial. Early treatment of gonococcal conjunctivitis may prevent further complications, which threaten the eyesight.²

Case report

A 36-year-old woman was referred by the ophthalmology team for screening and treatment of *Neisseria Gonorrhoeae* infection. She presented with right eye redness and pain dating back a month, associated with thick, yellowish discharge. She denied visual impairment. Her condition was worsening despite antibiotic eye drops that were prescribed by doctors from three different clinics. During the fourth week of the illness, her eyes condition remained the same. In our clinic, further history revealed that she had just learned that her husband, who is currently a prisoner, had multiple sexual partners previously. She also had a yellowish, smelly vaginal discharge over the past 3 months, associated with pain on urination and vaginal itchiness.

On examination, her right eyelid was swollen, her right eye conjunctiva was red and copious yellowish discharge was present. There was chemosis, as well. Her left eye conjunctiva was not swollen and no discharge was seen. Bilateral pupils were equal, round and reactive

and there was no evidence of keratitis. She was also afebrile. A vaginal examination revealed yellowish vaginal discharge. However, there was no ulceration or rash over the genital area.

Right eye and vaginal swabs were sent for gram stain and culture and sensitivity. The gram stain was done immediately and revealed the presence of gram-negative diplococci.

She received a single dose of intramuscular Ceftriaxone 1 gram and a tablet of Azithromycin 1 gram immediately. Notification for contact tracing was done on the same day. With her permission, we contacted the doctor in charge of the prisoner to counsel and treat her husband and reassured the patient regarding the maintenance of confidentiality.

She was given appointments at the primary care and ophthalmology clinics. One week after she completed treatment, her eye symptoms were completely resolved with no visual problems. The culture and sensitivity proved the presence of a *Neisseria Gonorrhoeae* infection, the vaginal swab was positive for *Neisseria Gonorrhoeae*, and both the vaginal swab and urine culture were negative for Chlamydia Trachomatis. Infective screenings for Human Immunodeficiency Virus (HIV), Hepatitis B, Hepatitis C and Syphilis were negative.

Discussion

Gonorrhoea infections can be asymptomatic in women. The most common presentations of gonococcal infection in women include vaginal discharge, itchiness, dysuria, dyspareunia, anal pain, anal discharge and lower abdominal pain³.

The patient may present with extra-genital symptoms, such as ocular conjunctivitis, as in our patient.¹ The presentations of gonococcal conjunctivitis can be similar to other forms of bacterial conjunctivitis, such as conjunctival injection, purulent eye discharge, chemosis and swelling of the eyelids.¹ Untreated gonococcal conjunctivitis may lead to keratitis, corneal ulceration, panophthalmitis^{1,4} and corneal perforation⁵.

A meticulous history, including sexual and social histories, should be obtained from the patient in order for a health care provider to diagnose gonococcal conjunctivitis.^{1,6} Obtaining a robust sexual and social history can be a great challenge to the health care provider, as not all patients are comfortable discussing such matters. These limitations can be tackled by developing a good rapport with the patient using good communication skills. A convenient environment and a patient-centered doctor who demonstrates empathy will encourage patients to share their problems, as needed.⁶⁻⁸ Every patient should be asked about their sexual partners, practices, previous history of sexually-

transmitted diseases (STDs) and any protection used to prevent STDs and pregnancy.⁹

A high index of suspicion is always important when there is prolonged, unresolved, treated conjunctivitis in a patient. Immediate treatment and proper investigations are obligatory, for instance, collecting an eye swab for gram stain and culture and sensitivity.⁵ In our patient, the treatment, notification, contact screening and treatment were carried out as recommended by the 2015 CDC Sexually Transmitted Diseases Treatment Guideline.¹⁰

Conclusion

A prolonged conjunctivitis, especially one lasting more than 2 weeks, which does not respond to usual treatments should raise suspicion and result in further investigation. Prompt treatment of the patient and the sexual partner will prevent disastrous complications. A patient-centered doctor with empathy and a conducive consultation room, along with a complete physical examination, will improve the quality of treatment and prevent unwanted complications.

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CASE REPORT

Sudden sensorineural hearing loss: A missed opportunity for treatment

Ali AH, Salahuddin Z, Salim R

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Abstract

Sudden sensorineural hearing loss (SSNHL) is an otology emergency and carries significant morbidity if the diagnosis is missed. It can present to any specialty but in our local setting the patient usually presents to primary care as it is easily accessible. We present a case of SSNHL that was initially presented to a primary care centre and the patient was reassured without any investigation being carried out. SSNHL has many causes thus making diagnosis difficult. However, with knowledge of its possible, a diagnosis can be made and appropriate management can be advocated to the patient. Hence, we discuss the three main causes of SSNHL, while emphasizing the immune system-mediated mechanism as the main cause in this case.

Introduction

Sudden sensorineural hearing loss (SSNHL) is an otology emergency and the estimated incidence varies from 5 to 20 cases per 100,000 individuals per year¹. However, there was a marked increase in the number of elderly Japanese receiving treatment for SSNHL in 1970s, 1980s, and 1990s.¹ It occurs equally among males and females, and affects the population between 50 to 60 years old. In most cases, the hearing loss is unilateral but about 5% of the cases are bilateral.²

Patient with SSNHL may present to different specialties, such as otorhinolaryngology, internal medicine, or primary care. In primary care or a non-otorhinolaryngology specialty, patient can be easily mis-diagnosed and inappropriately reassured without proper investigation.

The three main causes of SSNHL are viral infection, vascular occlusion and an immune system-mediated mechanism. In this case report, we want to highlight these causes and how the case was mis-diagnosed.

Case Report

A 35-year old woman presented to her obstetrician for per vaginal bleed. She was found to be 10 week pregnant and currently having a miscarriage. It was her second miscarriage. She was referred to our department for sudden-onset, right-sided hearing loss associated with intermittent tinnitus for the past two days. She denied any

trauma, ear discharge, or vertigo. She also had a similar episode of sudden-onset hearing loss about six months prior to this presentation and sought treatment at a primary care centre but was reassured as the symptoms only lasted about 24 hours. Her obstetric history revealed that she had miscarried during her first pregnancy about a year ago at around 12 weeks gestation. She denied any history of infectious disease, any vascular abnormalities, bleeding disorders, rashes, or any symptoms that might suggesting connective tissue disease.

Her general physical examination was normal, with no rashes or bruises seen. Her ophthalmology and otoscopy examinations were also normal. Pure tone audiometry (Figure 1) was done and showed a moderate-to-profound mixed hearing loss on the right ear as there were conductive hearing loss element at 250 Hz and 500 Hz and severe-to-profound hearing losses at frequencies 1, 2, 4 and 8 kHz. The hearing threshold for the left ear was normal. A computed-tomography scan was done and produced normal findings. She was treated for sudden sensorineural hearing loss. She was started on one 60 mg tablet of prednisolone for one week followed by tapering doses.

Her blood test results, coagulation profile, renal and liver tests were all normal. However due to limitation of facilities, all the immunology investigations were referred to another centre and results were received two weeks later. All the immunology and serology tests including antinuclear antibody, complement (C3 and C4) tests, VDRL, anti-Ro/SSA, anti-La/SSB,

Rheumatoid factor and antilupus were negative except for the test for anti-cardiolipin antibodies, which was 60 (normal value < 16 UGPL). She was started on an anti-platelet agent in view of that positive result. During the follow-up 12 weeks later, the hearing symptoms and repeated pure tone audiogram remained the same.

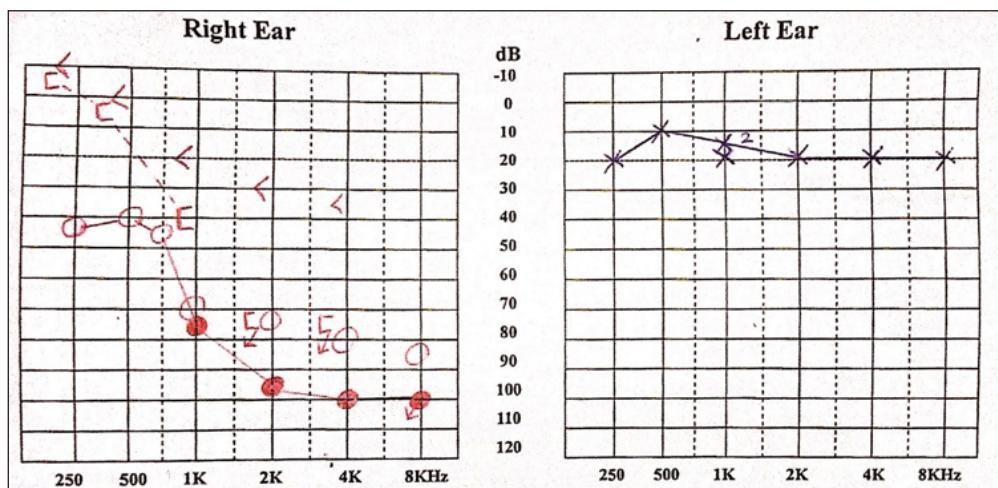


Figure 1 : Pure tone audiogram

Discussion

SSNHL is defined as acute hearing loss of 30 dB or more, in at least three consecutive frequencies, that develops within hours up to three days in duration.¹ The three main causes of SSNHL are viral infection, vascular occlusion and an immune system-mediated mechanism. It is very difficult to confirm the specific cause that contributes to each patient's hearing loss as detailed investigations reveal a specific cause only 10% of the time.³ The remainder of the cases are labelled as idiopathic in aetiology.

In the case of viral infection causing SSNHL, the exact mechanisms are still unclear. Various viruses can cause this illness such as mumps, the Epstein-Barr virus, herpes simplex type I and II viruses or cytomegalovirus, and as well as enteroviruses.³ Thus, any patient presenting to a primary care centre must be thoroughly examined, as only a small group of patients will have hearing loss, and SSNHL can be easily missed. As in our patient, frequently only an otoscopy examination is done at a primary care centre and no tuning fork test is conducted. It is also crucial to detect and treat SSNHL as early as possible because only 9% of patients will have significant recovery if treatment starts more than five days after a diagnosis of SSNHL is made.⁴

The cochlea is supplied by the terminal end of the vascular system. Any pathophysiological changes that lead to the narrowing of the

vessel are thought to cause SSNHL. Therefore, general cardiovascular risk factors that a patient has a higher risk of SSNHL.⁵ Other conditions, such as stroke and hypotension can also cause SSNHL because of the reduced blood flow to the cochlea.³

As far as our patient was concerned, the immune system-mediated mechanism causing her SSNHL was related specifically to her antiphospholipid syndrome. The pathogenesis of immune system-mediated hearing loss has been widely studied, but the exact mechanism remain unclear. Several mechanisms have been postulated which involves the amplification of autoantibodies production against the exposed phospholipid membrane lining the cell, therefore damaging the cell. The other mechanisms have been proposed include the hypercoagulable effect and also the increased complement activation in antiphospholipid syndrome, hence causing thrombosis in the cochlea vascular system resulting in SSNHL.² Our patient also had recurrent miscarriages, which it might suggest the presence of thrombosis in her decidua basalis.

In most of the immune system-mediated system hearing losses, the patient may have other immune-mediated diseases such as systemic lupus erythematosus,⁶ rheumatoid arthritis,⁷ and relapsing polychondritis.⁸ A study showed that 27% of patients with SSNHL had positive anticardiolipin antibodies, which indicates the possibility of ongoing immune system-mediated disease.⁹ However, the cause

of sudden SSNHL in our patient can be safely be pinpointed as towards the primary antiphospholipid syndrome as there was no other manifestation of immune-mediated disease.

Conclusion

Patients with SSNHL will usually present to a primary care centre. It is important for the primary care physician to thoroughly examined

and investigate the patient as this illness can be caused by many factors. Any possible diagnosis must be entertained, especially if the hearing loss is a sudden onset, occurs in a patient in a younger age group, is recurrent or occurs in a patient in any highly suspicious risk group. In a nutshell, early detection, treatment and proper referral is important in order to prevent further morbidity in these patients and preserve a better quality of life.

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Case series of children with steroid-Induced glaucoma

Lam CS , Umi Kalthum MN, Norshamsiah MD, Bastion MLC

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Abstract

Steroid-induced glaucoma is the most serious complication of the injudicious use of steroids, particularly among children affected by allergic conjunctivitis. This condition is steroid-dependent, and children are commonly being prescribed topical anti-inflammatories, including topical steroids, by general practitioners. Furthermore, topical steroids are also available over the counter, and this availability contributes to overuse without proper monitoring by an ophthalmologist. We present a series of five cases illustrating the devastating effect of unmonitored, long-term use of steroids among children for vernal keratoconjunctivitis. The medications were prescribed initially by general ophthalmologists and were continually bought over the counter by parents. At the presentation to our center, these patients were already compromised visually, exhibiting glaucomatous optic disc changes and high intraocular pressure. The series highlights the optic nerve damage resulting in irreversible visual compromises among children on long-term, topical steroids and the importance of regular monitoring with a low threshold for ophthalmologist referral.

Introduction

Vernal keratoconjunctivitis (VKC) is a chronic, atopic ocular surface disease, which involves mainly IgE-mediated hypersensitivity reactions. Recent studies suggest non-IgE-mediated reactions involving a multitude of cells, including eosinophils, mononuclear cells, neutrophils, and CD4 T-helper cells.^{1–3} It affects mainly boys in the first decades of life. Patients usually present with itchy, inflamed red eyes, photophobia, and foreign body sensation. Associated giant papillae over tarsal conjunctiva and limbus worsen the gritty sensations and induce more eye rubbing, with detrimental effects to ocular surface health. Over time, chronic micro- and macro-erosions of the corneal epithelium leads to shield-ulcer formation and eventual corneal vascularization. This vascularization not only leads to permanent visual problems, but it also reduces the chance of corneal graft survival should a graft be needed for visual rehabilitation in the future.^{4,5}

Corticosteroid is a potent and commonly used agent which is often prescribed to control ocular inflammation following surgery, VKC, or uveitic conditions.⁶ Various forms of topical corticosteroid are available at various concentrations, including Betamethasone 0.2%, Dexamethasone 0.5%, Prednisolone 1%, and Fluoromethalone (FML) 0.1%. Any of these preparations have the potential to induce ocular hypertension in susceptible

individuals, known as steroid responders. Ocular hypertension, which is defined as elevation of intraocular pressure, may subsequently cause optic nerve damage and visual field defects, and, ultimately, steroid-induced glaucoma. As the glaucoma progresses, patients will sustain irreversible visual losses and, potentially, eventual blindness. Both the concentration and duration of usage are proportionate to the risk.⁶

Steroids are often known as “wonder drugs” which alleviate the VKC symptoms rapidly and effectively. Due to the chronicity of VKC and effectiveness of topical steroid for this condition, young patients tend to have prolonged prescriptions. The availability of topical steroids at general practitioners’ clinics and over-the-counter pharmacies leads to overuse of this agent. The potential risk of visual loss due to cataracts and glaucoma may easily have been overlooked; hence, proper counseling to parents is not delivered. Children are at higher risk than adults for being steroid responders.^{7–9} VKC, which tends to wax and wane with different environmental exposures and food consumption patterns, leads to the prolonged use of topical steroids among children, in particular.

Therefore, clinicians and pharmacists should be more vigilant in prescribing steroid eye drops to children with VKC. In this case series, we report on cases of steroid-induced glaucoma in children with VKC.

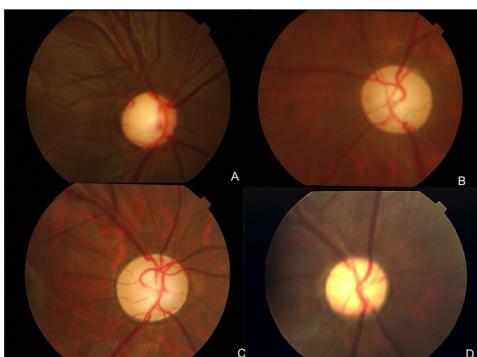


Figure 1: Optic disc photos showing advanced cupping of the disc.

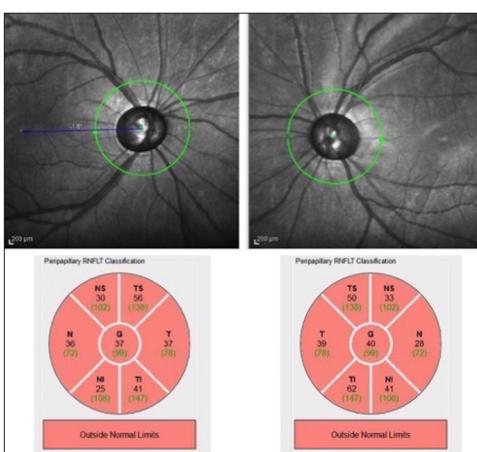


Figure 2: Optical coherence tomography of retinal nerve fiber layer (OCT RNFL) of patient Case 2 showing thinning of both nerve fiber layers

Case Reports

Case 1

A 10-year-old Malay boy with a history of four years of vernal keratoconjunctivitis was referred from a private ophthalmologist for uncontrolled intraocular pressure (IOP) in the right eye despite the use of four topical anti-glaucoma agents. Upon presentation, his right eye visual acuity was 6/18, while the acuity in the left eye was 6/12. There was marked relative afferent pupillary defect (RAPD) in the right eye and its IOP was 30mmHg, while the left eye's IOP was 12mmHg. The right eye optic disc was pale with a cup-to-disc ratio (CDR) of 0.9 (Figure 1: A), while left eye had a CDR of 0.5. The visual field (VF) showed tunnel vision in the right eye (Figure 4: A – Right eye), while left eye field was normal. This young patient had been using fluoromethalone eye drops regularly since 2008. Despite maximum glaucoma medical therapy, his eye deteriorated due to poorly controlled IOP, and he subsequently underwent a right eye trabeculectomy with mitomycin C (MMC). The right eye IOP was eventually controlled with a single anti-glaucoma agent, and the left



Figure 3: Trabeculectomy done on patient Case 2.

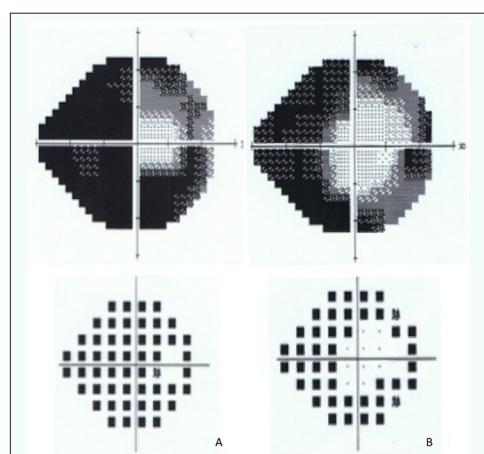


Figure 4: HVF showing tunnel vision in right eye of patients in Cases 1 and 2.

eye IOP was controlled with one anti-glaucoma agent without surgical intervention. The VKC is currently controlled with cyclosporine eye drops and tacrolimus eye ointment. His current visual acuity in the right eye is 6/12 and 6/9 in the left eye. His visual field remains similar to the initial presentation.

Case 2

An 11-year-old Malay girl with a four-year history of VKC was referred from a private ophthalmologist for uncontrolled IOP in both eyes. She was diagnosed with allergic conjunctivitis and started initially on topical Maxidex 0.5%, which she had been buying over the counter ever since without an ophthalmologist's supervision. Upon examination, her visual acuity was 6/24 bilaterally; the IOP was 42mmHg for the right eye and 40mmHg for the left eye. The optic discs were pale in both eyes, with almost full cupping. (Figure 1: B, C) (Figure 2: Optical coherence tomography of optic disc showing bilateral severe thinning of retinal nerve fiber layer). She underwent a trabeculectomy with MMC in

both eyes (**Figure 3**: Left eye trabeculectomy). The IOP of both eyes is well-controlled without anti-glaucoma medication at present. Her visual acuity remains the same as it was during the initial presentation, i.e., 6/24 bilaterally. The VF, which showed tunnel vision bilaterally upon initial presentation, has not worsened much over time (**Figure 4**: B – Right eye).

Case 3

A 10-year-old Malay boy, who was diagnosed as VKC at the age of 7, was referred for continuation of care for steroid-induced-glaucoma on two anti-glaucoma agents. He was on FML eye drops, oral prednisolone, and oral cyclosporine for the allergic eye disease. His IOP was otherwise well-controlled, the right eye reading was 17mmHg and left eye was at 18mmHg. His visual acuity upon presentation was 6/18 bilaterally, and a fundus examination showed pink optic discs, with cup-to-disc ratios of 0.7 bilaterally. There was a constricted VF, which was worse in the left eye. His IOP is well-controlled with the two anti-glaucoma agents at present.

Case 4

A 17-year-old Malay boy first presented at our center at the age of 14 with worsening allergic conjunctivitis. He had been on sodium chromoglycate eye drops and antihistamine eye drops. The patient, however, defaulted on follow-up. Due to the frequent flare-up of his VKC, he regularly used unprescribed topical steroids sold at the pharmacy without supervision from an ophthalmologist. At presentation, his visual acuity was 6/9 in both eyes, and the IOP was 36mmHg and 38mmHg in the right and left eyes, respectively, with cup-to-disc ratios of 0.6 bilaterally. Fortunately, his VF is within normal limits. To date, the patient's IOP is well-controlled with one anti-glaucoma medication and no surgical intervention.

Case 5

A12-year-old Malay boy was referred to our center for poorly-controlled IOP despite maximal anti-glaucoma treatment and a history of glaucoma-filtering surgery in the left eye. He had suffered from VKC since the age of 4 and was diagnosed by a private ophthalmologist. His parents had brought him to many clinics, and he had been invariably using topical steroids, either prescribed by different clinics or sold over the counter. He was subsequently diagnosed with steroid-induced glaucoma at the age of 11. The left eye visual acuity was 6/24, while right eye had an acuity of 6/12, and the recorded IOPs were 12mmHg and 30mmHg for the right and left eye, respectively.

The optic discs were already pale at presentation with advanced cup-to-disc ratios of 0.9 (Figure 1: D), and the VF was constricted in the left eye. He had a repeat trabeculectomy with MMC in the left eye, and is currently doing well on one anti-glaucoma medication.

Discussion

Topical steroids are valuable agents in the treatment of a wide range of ocular disorders; however, their use is not without potential complications. The complications include cataracts, glaucoma, and opportunistic ocular infections. Steroid-induced glaucoma is one of the most debilitating diseases, as it may cause irreversible loss of vision and, potentially, blindness.

Steroid-induced glaucoma is due primarily to increased resistance to aqueous outflow. The exact mechanism is uncertain, but studies have shown that corticosteroid up-regulates production of ground substances over the endothelial lining of the trabecular meshwork (TM) itself. This production leads to microstructural changes in sponge-like TM and, subsequently, increases resistance to aqueous outflow.^{10,11} In-vitro studies have also shown that phagocytic activity of the TM is suppressed and enzymes, such as proteases, are reduced.^{10,12} Hence, debris deposition increases in the TM, resulting in a further increase in outflow resistance. Corticosteroids are demonstrable in the aqueous humor after 5 to 30 minutes of topical application. Most are lipophilic and readily permeate through the epithelium.¹³

The types of corticosteroid eye drops used and the duration of use are important determinants in the development of glaucoma.¹⁴ Dexamethasone eye drops are associated with a higher risk of glaucoma compared to prednisolone and fluoromethalone eye drops.^{14,15} Fluromethalone has the smallest risk of causing ocular hypertension but nonetheless may lead to glaucoma if used over prolonged periods,¹⁶ as noted in Cases 1 and 3. Therefore, usage of drugs with lower potency does not guarantee increased safety.

Longer duration of use of topical steroids increases the risk of ocular hypertension. The rise in IOP is evident any time between hours to weeks after commencing topical corticosteroid use.^{6,17,18} Some studies have even suggested that usage for more than 8 to 10 weeks may result in irreversibly high IOP, which does not disappear even after withdrawal

Table 1: Summary of the case series

Age (at presentation)	Race Gender	Types of topical corticosteroid	Duration of usage	Visual acuity upon presentation	IOP upon presentation (mmHg)	Cup-to-disc ratio upon presentation	HVF upon presentation (Mean deviation dB)	Surgical intervention	Number of anti-glaucoma medications at present	Current VA	Current VF (Mean deviation dB)	Cataract
Case 1 10	Malay Male	FML	7 years	6/18 (R) 6/12 (L)	30 (R) 12 (L)	0.9 (R) 0.5 (L)	-32.03 (R) -3.38 (L)	Yes	1 (R) 1 (L)	6/12 (R) 6/9 (L)	-29.86 (R) -6.80 (L)	Mild PSC
Case 2 11	Malay Girl	Dexamethasone	4 years	6/24 (R) 6/24 (L)	42 (R) 40 (L)	0.9 (R) 0.9 (L)	-27.37 (R) -29.10 (L)	Yes	0 (R) 0 (L)	6/24 (R) 6/24 (L)	-29.15 (R) -31.59 (L)	Mild PSC
Case 3 10	Malay Male	FML	3 years	6/18 (R) 6/18 (L)	17 (R) 18 (L)	0.7 (R) 0.7 (L)	-25.65 (R) -16.21 (L)	No	2 (R) 2 (L)	6/6 (R) 6/6 (L)	-20.00 (R) -21.77 (L)	Clear
Case 4 17	Malay Male	Dexamethasone	3 years	6/9 (R) 6/9 (L)	36 (R) 38 (L)	0.6 (R) 0.6 (L)	-3.43 (R) -2.98 (L)	No	1 (R) 1 (L)	6/9 (R) 6/9 (L)	-4.44 (R) -2.92 (L)	Clear
Case 5 12	Malay Male	Betamethasone	7 years	6/12 (R) 6/24 (L)	12 (R) 30 (L)	0.5 (R) 0.9 (L)	-4.85 (R) -30.10 (L)	Yes	1 (R) 1 (L)	6/9 (R) 6/12 (L)	-17.58 (R) -25.69 (L)	PSC

R –right eye, L – left eye, PSC – Posterior Subcapsular Cataract

of the medications.^{9,18} The persistence of elevated IOP despite steroid discontinuation is noted in all of the patients in this series. This irreversibility suggests that prolonged topical steroid use causes permanent changes to the microstructure of the TM.

Most patients remain symptom-free until significant glaucomatous optic nerve damage has occurred, as initial nerve fiber layer damage accompanied by a moderate visual field defect is often unnoticeable. Children, in particular, usually have no or vague complaints and therefore often present in the late stages of the disease. Two out of 5 cases (Cases 2 and 3) were already at the advanced stage of glaucoma, with significant visual morbidity, when they presented, and their visual fields had already been severely compromised. They now require lifelong treatment with anti-glaucoma medications. Three of the patients who required glaucoma filtering surgery had been using topical steroid for 4 years or more. These cases illustrate aptly that injudicious or prolonged use of steroid eye drops in children can lead to significant vision and VF impairment, leading to eventual blindness. Furthermore, these children developed glaucoma at a very young age, and being dependent on eye drops for their whole life not only exposes them to the adverse effects of medications, but also imposes a great burden on the family and the country's economy. The possibility of complete blindness is real, as glaucoma progression is only slowed by medication and not completely halted.

Steroid-induced cataracts are another potential complication of prolonged steroid usage among VKC children.¹⁹ This can lead to poor vision, as visually significant cataracts have been reported in a few studies,^{18,20} and these children may require early cataract operations. The most common type of cataract induced by steroids is the posterior subcapsular type,¹⁹ which was present in three patients in the series. However, their cataracts were not visually significant, and they did not require cataract operations. Furthermore, glaucoma surgery is known to predispose patients to cataracts, and cataracts may develop later in these individuals.¹⁸

The incidence of allergic eye disease is on the rise due to environmental factors and food consumption patterns. Among children, the disease can be more severe and difficult to control due to poor compliance with standard medications. Steroids are very effective anti-inflammatory agents, helping to relieve the symptoms of itchiness and able to improve the appearance of patients' eyes. Hence, parents tend to use steroids when their children have a flare-up of VKC. Unfortunately, many practitioners and parents are not aware of the detrimental effects of chronic topical steroid application to vision, namely, glaucoma and cataracts.

Children, compared to adults, are at higher risk of being steroid responders. Those aged less than 10 years old, show more rapid and severe increases in IOP^{8,9} despite only being on twice-daily regimes.²¹ This rapid increase may be attributed to the degree of maturity of the drainage angle.⁸ In this case series, four cases were prescribed topical corticosteroids at the less than 10 years of age. This, again, emphasizes the importance of cautious use of topical corticosteroid in children, including proper monitoring and preferably under the continued care of an ophthalmologist. Therefore, parents should be informed of the danger posed to children, and proper follow-up must be emphasized when using steroids. We recommend that topical steroids for ocular use should only be prescribed by ophthalmologists with access to IOP monitoring.

Conclusion

This case series highlights the possibility of severe and permanent side effects stemming from topical steroid eye drops, especially among children. General physicians and pharmacists should be aware of the damaging effects of unregulated and chronic steroid usage. They need to exercise caution when treating patients with ocular allergies with steroids. Parents also should be educated on the potential side effects of steroid use in children, especially if prolonged usage is envisioned. Preferably, topical steroids should only be prescribed by ophthalmologists with proper monitoring of the IOP and other potential side effects.

How does this paper make a difference to general practice?

- It increases the awareness among general physicians and pharmacists regarding steroid-induced glaucoma, particularly among children, as they are more prone to this complication.
- It stresses the importance of educating patients and parents regarding this potential complication upon prescription of steroid eye drops in order to avoid unsupervised and/or prolonged usage.
- It recommends that steroid eye drops be preferably prescribed by an ophthalmologist with access to intraocular pressure monitoring.

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CASE REPORT

Intraosseous Lipoma of the Calcaneum: A rare cause of heel pain

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Keywords:

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Introduction

Heel pain is a common presentation at any outpatient clinic. Heel pain may originate from either bone or the surrounding soft tissues. Tendo Achilles tendinitis and plantar fasciitis are the two most common causes of heel pain. We report a case of an uncommon condition presenting through a common presentation at the primary care clinic, i.e., an intraosseous lipoma of the calcaneum presenting through heel pain. This tumour constitutes 0.1% of benign bone tumours and is 8% prevalent in the calcaneum bone.¹

Case report

A 50-year old man, who is a carpenter, presented to the outpatient clinic with a complaint of sudden onset of right heel pain which had been continuous in nature for the past month. It worsened after prolonged walking and was partially relieved with rest. He had been limping ever since it began, and it affected his normal daily activities. He denied any history of trauma to the heel. He was dependent on celecoxib 200mg daily to ease the pain. He was a known diabetic on oral anti-diabetic drugs. He had no constitutional symptoms, such as loss of appetite or weight, and none of his family members had had malignancies.

On examination, he showed evidence of an antalgic gait and could not walk on the heel. There were no signs of physical abnormalities on his right foot. However, there was some tenderness over the lateral aspect of the right ankle overlying the calcaneal bone. There was no restriction of joint motion around the ankle joint. There were also no palpable lymph nodes in the inguinal region.

Blood biochemistry investigation showed no signs of infection or inflammation. Plain radiography of the right ankle revealed a lytic lesion in the calcaneum with central calcification (**Figure 1**). This is differentiated

from a bone infarction, which will result in sclerotic changes. Magnetic resonance imaging (MRI) reported an intraosseous lesion consistent with a lipoma.

He underwent surgery, and the intraoperative finding was a cystic lesion in the calcaneum with multiple loci containing fat tissue. Bone curettage was carried out, followed by packing the cavity with polymethylmethacrylate (bone cement). A histopathological examination confirmed the diagnosis of lipoma. The patient was pain-free after the surgery, and he was able to ambulate at his old capacity one month after surgery.



Figure 1. Multiseptate radiolucent lesion in the calcaneum. There is a cortical breach over the inferior border of the lesion.

Discussion

Heel pain is a common presentation among patients in the primary care setting. Most of the causes are degenerative or inflammatory in nature. Most presentations are due to tendo Achilles tendinitis, plantar fasciitis, stress fracture or arthritis. The location of the pain itself may cause significant daily activity impairment.

Intraosseous lipoma is a rare, benign tumour in the calcaneum. There is no gender preponderance, and this type of tumour is commonly seen in the fourth decade of life. It may occur in any bone; nonetheless, the proximal femur is the most common site

(34%).^{1,2} Most of the cases are asymptomatic; however, symptoms such as pain, are seen when the lesion is in the calcaneum.

As most patients are asymptomatic, its diagnosis is made incidentally on a routine plain radiography, computed tomography (CT) scan or MRI.³ The definite diagnosis is still made through histopathological examination. Therefore, it is mandatory that the clinical and radiological findings and biopsy be correlated. The differential diagnoses which must be ruled out include a non-ossifying fibroma, an aneurysmal bone cyst, a bone infarct, a bone cyst, a giant cell tumour or even a metastatic bone tumour.

Conservative treatment is the treatment of choice in an asymptomatic individual.^{4,6}

However, regular follow-up is recommended. In the case of an asymptomatic patient with suspicion of malignancy or impending fracture, surgery has to be considered. Curettage and autologous bone grafting is the surgical option of choice. The bony defect or cavity can be filled and packed with bone hydroxyapatite or polymethylmetacrylate (bone cement).^{4,5,6}

Even though this tumour is rare, there is a need for physicians to recognize its radiological findings and offer the appropriate treatment options. It is also important for primary care physicians be aware that there are other causes of heel pain than the common suspects.

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CASE REPORT

Coughing on palpation: A rare complication of vagal schwannoma

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Samarakkody ZM, Sayuti KA, Mat Zin AA, et al. Coughing on Palpation: A Rare Complication of Vagal Schwannoma. *Malays Fam Physician*. 2018;13(3): 40–43.

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Abstract

Cervical vagal schwannoma is an uncommon, benign neoplasm. It is usually asymptomatic and presents as a painless, palpable mass in the neck. However, large schwannomas can cause dysphagia, dysphonia or dyspnea as a result of compression. We report a case of an extremely rare complication of vagal schwannoma in which neck palpation induced the patient to cough. As the patient refused any surgical intervention, conservative management was used.

Introduction

A schwannoma is a benign tumor that arises from the Schwann cells. It is a rare, slow-growing lesion.¹ Schwannomas can be classified into intracranial and extracranial schwannomas based on the site of occurrence and may arise from any cranial nerve except the olfactory and optic nerves, as these two nerves are unmyelinated. Intracranial schwannomas are most frequently found in the vestibulocochlear nerve, followed by the glossopharyngeal, accessory and the hypoglossal nerves.²

Extracranial schwannomas are reported to occur in the head and neck region with a frequency of 25–45%. The majority of schwannomas occur in the vagus or sympathetic trunk, which are components of the parapharyngeal space.² Schwannomas are usually asymptomatic and painless, palpable masses in the neck; however, a large schwannoma can produce dysphagia, dysphonia or dyspnea as a result of compression of the adjacent neck structures.³

Case Report

A 74-year-old gentleman complained of a right neck swelling that had been increasing gradually in size for the past 2 years. He had no pain, dysphagia, dyspnea or dysphonia. He also did not complain of any shortness of breath, foul-smelling breath, fever, weight loss or loss of appetite. He had no symptoms of hyperthyroidism or hypothyroidism. Interestingly, he complained of cough whenever the neck mass was touched. The patient was a diabetic with hyperlipidemia and hypertension. He also had a cerebral insult in the

previous year with right hemiparesis which had resolved. He had no history of tuberculosis or any contact with such patients. The patient was a chronic smoker.

The patient was alert and conscious and oriented to time and place. All cranial nerves were intact. The oral cavity and oropharyngeal examination was unremarkable. The neck examination revealed a fullness on the right Level III measuring 4 cm x 3 cm (**Figure 1**). There were no skin changes and the fullness was not tender and soft on palpation. However, during the palpation of the mass, the patient developed bouts of coughing. Otoscopy and nasoendoscopy showed normal findings. On examination of the larynx and hypopharynx, all structures were normal, and the bilateral vocal cords were mobile.



Figure 1. Fullness of the right neck at Level III

A computed tomographic (CT) scan demonstrated a well-defined, solitary mass in the right carotid space, posterior to the carotid artery and internal jugular vein (**Figure 2**). The mass was hypodense to the skeletal muscles

and showed mild enhancement post-contrast. There was no calcification or necrosis within it. The mass measured 2.3 cm x 2.4 cm x 7.6 cm and extended from the level of C2/C3 to C6/C7. It compressed the right internal jugular vein, abutted the common carotid artery and stretched the adjacent sternocleidomastoid muscle. However, the vein was still patent and was not separated from the common carotid artery. These features were suggestive of a right vagal schwannoma.

An attempt to perform fine needle aspiration for cytology (FNAC) failed due to coughing induced by palpation of the mass. In view of risk to the adjacent vascular structures, an ultrasound-guided FNAC was performed with difficulty due to the patient's paroxysmal cough during the procedure. The ultrasound reported a homogenous hyperechoic solid lesion measuring 2.3 cm x 2.6 cm in the right neck lateral to the right internal jugular vein and internal carotid artery. No calcification or vascular activity was noted within it.

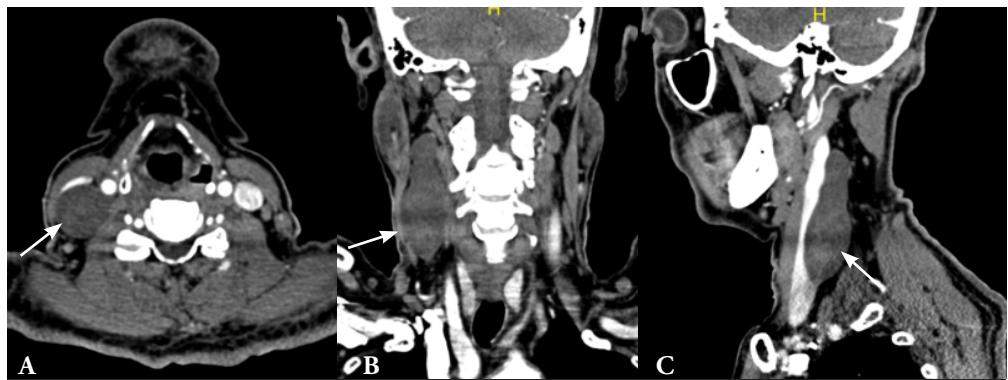


Figure 2. CT scan images in axial (a), coronal (b) and sagittal (c) planes showing a well-defined, mildly-enhanced mass in the right posterior carotid space (white arrow).

Microscopically, the smears of high cellularity were composed of clusters of uniform spindle cells in a bloody background. The spindle cells had oval nuclei, inconspicuous nuclei and a moderate amount of cytoplasm. Blood vessels were also seen intermingled with these clusters. No mitosis or bizarre cells were seen. No lymphoid or squamous elements were noted. Sections from the cell block showed sheets of spindle cells arranged in a hypercellular pattern. Some cells exhibited palisading and formed vague Verrocay bodies. The fine needle aspirate of the mass showed the presence of spindle cells, indicating that it was most probably a schwannoma.

Based on the patient's age and co-morbidities, we discussed the treatment plan with the patient and his family. In consideration of the patient's multiple co-morbidities; possible complications, such as hoarseness and injury to the adjacent structures; and the patient's preferences, we agreed to conservative watchful management, as the tumor was benign and slow-growing. As of now, the patient has been under our observation for the past year, tumor growth has been static and no compression symptoms or airway compromise have been exhibited.

Discussion

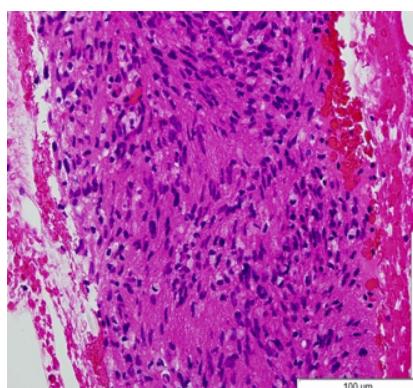


Figure 3: Cell block shows sheets of spindle cells arranged in fascicles. Some of the cells exhibit palisading, forming vague Verrocay bodies (Hematoxylin & Eosin, x 400 magnification).

Schwannoma is a tumor originating from Schwann cells. It can be found in any area of the body. In the head and neck region, tumors have been reported to be in the oral, orbital and nasal cavities, apart from lesions on the scalp mastoid and other upper-airway structures. It can also present as a lateral neck mass, including being found in the parapharyngeal space. The origin of neck schwannomas can be the vagus nerve or the cervical sympathetic chain, i.e., the cervical or branchial plexus.³

Neoplasms of the vagus nerve are rare, and one third of these neoplasms are schwannomas, typically arising from the nodose ganglion. As it exits the skull base, the vagus nerve forms the

superior and the inferior ganglion. Schwannomas are predisposed to grow from the superior ganglion.⁴

The vagus nerve then runs between the internal carotid artery and internal jugular vein within the carotid sheath on the cranial side of the bifurcation of the common carotid artery; later, it then passes between the common carotid and the internal jugular vein on the caudal side. As the vagal schwannoma enlarges, it will displace the internal jugular vein laterally and the common carotid and internal carotid artery medially.^{1,4}

Schwannomas which do not present with a neurological deficit, and a differential diagnosis may be paraganglioma, a branchial cleft cyst, malignant lymphoma or a metastatic cervical lymph node.

Investigations, such as fine needle aspiration and a CT scan, have low specificity and do not allow for differential diagnoses. The better imaging modality is magnetic resonance imaging (MRI).⁵⁻⁷

However, when using a CT scan, if the common carotid and internal jugular veins are separated and displaced antero-laterally, a vagal schwannoma should be suspected. But if the common carotid and internal jugular are not separated, a cervical sympathetic chain schwannoma may be suspected.⁹

Although cough may be a presenting symptom, induced by pressure on the tumor itself, by clothing or via a neck examination, there has been no previously recorded case of coughing being elicited during fine needle aspiration.¹⁰ Although schwannomas are usually asymptomatic, if there are symptoms present, hoarseness is the most common clinical presentation and occasionally a paroxysmal cough may be produced on palpating the mass.¹⁰ A paroxysmal cough during fine needle aspiration is a newly observed symptom.

A paroxysmal or reflex cough is caused by the stimulation of the vagal nerve afferents, similar fashion to the cough elicited by stimulating the Arnold nerve during aural toilet. There have also been reported cases of bradycardia due to the stimulation of the vagal afferents during the excision of a vagal schwannoma, as well.⁶

These symptoms would not be present in a sympathetic chain schwannoma, unless they were

due to pressure on the adjacent structures by the tumor itself. However, a Horner sign can be present due to pressure on the sympathetic chain either by tumor itself or an adjacent tumor.⁸

FNAC is the aspiration of cells or tissue fragments using 22, 23 or 25 gauge needles from palpable lesions. It is a fast, nearly pain-free diagnostic tool. However, it does have its limitations in deep-seated lesions or lesions that are not palpable. This is where ultrasound guidance aided by the radiologist and longer needles play a role. In short, ultrasound-guided fine needle aspiration is an adjunct to plain fine needle aspiration.¹¹

The treatment of choice is essentially surgical, done by intracapsular enucleation of the tumor, preserving the nerve. This surgery is aided by a nerve stimulator and surgical microscope. However, some authors believe that the close adherence of the vagus nerve to the tumor capsule renders preservation of the nerve impossible and advise a complete excision with nerve transection and preferably immediate re-anastomosis or vocal cord medialization.¹² Based on CT imaging alone, it would prove to be difficult to find the plane of dissection to separate out the intracapsular part of the tumor and preserve the nerve. This is due to the close adherence of the tumor capsule to the nerve. As the patient did not consent to surgery, there was no role for the complete excision of the tumor and reanastomosis. Chiofalo et al. mentioned that if it is impossible to find an adequate plane and it is technically difficult to preserve the integrity of the nerve trunk, the involved segment may be resected, and an end-to-end anastomosis could be performed using microsurgical techniques.⁷ Andrea et al. have managed to accomplish end-to-end anastomosis in their series with a resection length of 3 cm and post-operative hoarseness.² Chiofalo et al. also reported that their patient was hoarse post-operatively after a resection of 3 cm as well.⁷ Other literature did not mention the exact length of resections applicable for end-to-end anastomosis.

Prior to 1931, most parapharyngeal schwannomas were excised via the trans-oral route with complications such as incomplete removal, serious hemorrhage, infection and cranial nerve damage.⁸ Nowadays, the trans-cervical surgical approach in the parapharyngeal space is the preferred choice.

Although benign in nature, these schwannomas

may cause pressure on other structures. However, they are relatively radio-resistant.^{8,13} Thus, this modality of treatment is not a viable option.

Some authors advocate a 'wait and see' approach. Asymptomatic tumors can be observed due to their benign nature and indolent course. Their slow growth, low recurrence rate and non-invasive nature often allow for observation.¹²

The malignant potential of extracranial schwannomas and the risk of recurrence after surgical resection are understudied. However, there have been no reports of malignant transformations.⁸

Conclusion

Although rarely encountered in the primary care setting, vagal schwannomas should not be excluded from the list of possible differential diagnoses for a lateral neck mass. Although it is a benign lesion, it can cause local compressive of the neighboring structures manifested as hoarseness, cough or occasionally more distressing symptoms like dyspnea and stridor. A confirmatory MRI and fine-needle aspiration cytology, preferably aided by ultrasonography, are the next management steps. Since a schwannoma is a benign, slow-growing lesion, patients can be observed at 6-month intervals. The treatment of choice is surgery, but the potential morbidities must be discussed well with the patient prior to any invasive treatment.

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TEST YOUR KNOWLEDGE

Young Lady with Bilateral Yellowish Lesions on Her Eyelids

Ishak A, Mohd Yusoff SS, Wan Abdullah WNH

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Case summary

A 26-year-old woman with an unknown medical illness presented with yellowish skin lesions around both eyes, visible for the past 4 years. The lesions were neither itchy nor tender and had increased gradually in size. She had neither constitutional nor hyperthyroidism symptoms. She is the youngest out of four siblings, and none of her family members have cardiovascular disease or similar problems. Upon examination, there were bilateral yellowish plaques over the periorbital region. Her body mass index (BMI) was 23.8 kg/m^2 . Her vital signs were all normal at every visit.



Figure 1. Yellowish plaque on bilateral eyelids.

Questions

1. What is the provisional diagnosis?
2. State one investigation required to look for associated disease?
3. How would you manage the above condition?

Answers:

1. Xanthelasma Palpebrarum (XP).
2. Fasting Lipid Profile.
3. The management approach for XP depends on the lesions' characteristics, such as the consistency and size of the lesions. Approaches can be divided into non-invasive and invasive treatments. In a non-

invasive treatment, the underlying cause is treated. The most common related cause is hyperlipidaemia, which is reported in about half of the patients with xanthelasma.¹ In this case, her cholesterol level indicated the need for treatment. Therefore, her condition should be treated with an anti-lipid agent. Apart from an anti-lipid agent, regular exercise and dietary modifications are suggested to manage the underlying hyperlipidaemia in order to reduce the patient's cardiovascular risk factors. Lowering the lipid level may induce the regression of xanthelasma in some patients; however, the effect is not consistent.² Invasive treatments focus on local treatment of the lesion, mainly for cosmetic purposes. Previous common practices used to remove this type of lesions were cauterity and laser ablation.¹ Nowadays, chemical cauterization

using trichloroacetic acid (TCA) is being practiced by most physicians. The practice is a simple, cost-effective, and safe office procedure. However, it still requires multiple applications to achieve satisfactory results.³ Regardless of whether patients have or have not received treatment for xanthelasma, it is important to follow up with exploration for cardiovascular diseases and lipid profiles of the patients.

Discussion

There are many types of cutaneous xanthoma, such as eruptive xanthomas and tendinous xanthomas. Cutaneous manifestations of systemic disease can be an early warning sign or a late manifestation of a chronic disease. The lesion is frequently associated with cardiovascular disease, diabetes, and obesity. It is also a feature of diseases such as primary biliary cholangitis and primary disorders of low-density lipoprotein (LDL)-cholesterol metabolism. Xanthelasma Palpebrarum is the most common cutaneous xanthoma, and it is commonly seen in primary care clinics.¹ Patients with XP have lipid abnormalities ranging from 9.1% – 67.9%.³ Thus, the need to determine a full lipid profile in these patients is present mainly to detect those who are potentially at increased risk of cardiovascular disease.^{4,5} Researchers differ in their opinions on the lipid metabolism related to XP. Most findings related to dyslipidaemia differ in the type of lipid involved. Sharma et al. (2013) showed that XP was related to abnormal lipid levels, particularly total cholesterol, the low-density lipoprotein (LDL) level, and the Chol:HDL (cholesterol: high-density lipoprotein) ratio. Insignificant relations were found between XP and

triglyceride and very-low-density lipoprotein (VLDL) levels.^{6,7} In a control case study among the Iran population, there was no significant association with hypercholesterolemia and hypertriglyceridemia.⁵

Xanthelasma before the age of 40 is most likely associated with familial hypercholesterolemia. The prevalence is higher among females than in males. The occurrence of Xanthelasma also increases with age. This patient's lipid profile was as follows: Total Cholesterol: 6.61 mmol/L, Triglycerides: 2.51mmol/L, HDL: 0.8 mmol/L, and LDL: 4.7mmol/L. Her thyroid-stimulating hormone (TSH) was 1.67miu/L, which is normal. She had hypercholesterolemia with hypertriglyceridemia and a low HDL level. She was prescribed simvastatin 20 mg, to be taken at night. For the management of her XP, she underwent cryotherapy treatment using trichloroacetic acid (TCA). TCA 30% was used for the first 2 visits, spaced 3 weeks apart. The concentration level of TCA was increased to 50% at the 3rd visit which was also 3 weeks apart. During the follow-up after the 3rd visit, the patient showed 40% improvement. Even though the patient had not fully recovered, she was satisfied with the treatment. In general, if a lesion is successfully removed, the patient needs to be informed of the possibility of recurrence and the side effect of the treatment, such as scarring even though it is very rare.

The other important management approach for this patient is to have regular cardiovascular screenings, as scheduled by the Ministry of Health, and monitoring of her lipid profile needs to continue to be improved with anti-lipid medications.

How does this paper make a difference to general practice?

- This paper highlights that, although xanthelasma palpebrarum is common, medical officers should know how to construct a management plan and make patients aware of the treatment options, even if some treatments are for cosmetic purposes.

TEST YOUR KNOWLEDGE

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TEST YOUR KNOWLEDGE

An Aubergine in My ... Case of Rectal Foreign Body

Mohamad IS, Yaacob H

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Case summary

A 24-year-old man presented to the casualty department with a history of left-sided, colicky abdominal pain for one day. It was associated with an inability to pass flatus or motion within the same duration. There was no history of vomiting. On examination, the vital signs were within normal limits, and he was afebrile. His abdomen was soft, but a hard mass was palpable on the left side of his abdomen. There was no peritonitis. The bowel sounds were sluggish.



Figure 1. A plain abdominal radiograph was taken

Questions

1. What is the abnormality seen in the radiograph?
2. What further history will you ask for from the patient based on the above findings?
3. What complications can arise from the above condition?
4. State a few management options for the above problem.

Answers:

1. Description of the abdominal radiograph:

There is a longitudinal shadow visible in the left abdominal region paralleling the spine from the level of L1 until the sacral region.

No calcification is seen within the shadow.
No bowel dilatation is noted.

2. Rectal foreign bodies are not commonly reported in the literature. The patients that present with a foreign body in the rectum come mainly from younger age groups or mentally disabled individuals. However, in adult cases, most of the cases come from abnormal sexual acts. In these cases, we are usually unable to get a true history from the patient, as the patient typically does not want to reveal the history due to embarrassment.

In such cases, the presentation of the case is usually delayed because the patient tries to remove the foreign body by himself.

Further history revealed that patient had actually inserted an aubergine into his rectum for sexual pleasure. He denied having any history of trauma or any underlying psychiatric illness.

He denied any other history of sexual deviations or practicing homosexuality.

3. Few complications can arise secondary to foreign body insertion to the rectum/anal. Known complications include intestinal obstruction, perforation of the bowel, and excessive bleeding due to excessive trauma.
4. The retrieval of the foreign body can usually be done manually under local anesthesia. If it proves difficult to remove manually, a laparoscopic procedure can be used. A laparotomy is needed if the object is placed deeply into the deeper large bowel.

TEST YOUR KNOWLEDGE

In our case, the object was not visible via proctoscopy. As we were unable to remove the object rectally, he was subjected to examination under anesthesia. Fortunately,

the aubergine was removed intact by using a non-traumatic sponge-holding forceps with no significant injury to the rectum, anus or, should we also mention, the aubergine.

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