

A boy with bluish neck swelling on screaming

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Case summary

A 5-year-old Malay boy was presented with a history of swelling on the right side of the neck for 6-month duration. It was noticeable everytime when the child screamed (Figures 1 and 2). There was no other associated symptom.

Questions

1. Describe the clinical manoeuver(s) that can help bring out the mass or swelling during examination.
2. What is the differential diagnosis?
3. What is the appropriate investigation?
4. Outline the treatment choice in this patient.



Figure 2. During manoeuver, the mass appeared with bluish discoloration of the overlying skin (*in circle*). Prominent external jugular vein also appeared (*black arrow*)



Figure 1. The mass was not visible at rest

Answers

1. We can ask the patient to do Valsalva manoeuver. If the patient is a small child, the sign can be observed while the patient is crying. The effect can also be seen if the patient is straining, screaming, coughing or sneezing. This is attributed to the presence of valve in the jugular vein that is directed towards the heart, which would increase the venous pressure whenever there is an increase in the intrathoracic pressure.¹
2. The source of the content can be blood vessel (phlebectesia or abnormality of the jugular veins) or can be air from the airway (external laryngocoele). A soft cystic mass at the lateral side of the neck, which does not change with Valsalva manoeuver, includes pharyngeal pouch/pharyngocoele,

branchial cyst, cystic hygroma or solid tumour.¹ However, in this case, as the mass appeared bluish and demonstrated only with Valsalva manoeuvre, the blood vessel anomaly should be considered first. Besides internal jugular vein, anterior jugular and external jugular veins can be affected. There is a marked preponderance to occur on the right side.^{1,2}

3. Ultrasonography (USG) with Doppler study of the neck will be very useful to diagnose the condition, although contrast-enhanced computed tomography (CECT) scan has been shown to give better delineation and relation of the mass with the adjacent structures.³ However,

in a primary care setting, Doppler USG is more practical. In this case, it confirms the presence of ectatic right jugular vein (Figure 3). No filling defect was seen. The expanding ration is calculated by dividing the diameter during Valsalva manoeuvre by diameter at the resting state as a percentage.⁴

4. In majority of cases, the treatment is conservative, especially for bilateral cases or in the absence of complication.^{2,4,5} Referral to a vascular surgeon may be warranted if the mass is extensive or there is marked discomfort,⁶ or complicated by respiratory compromise such as upper airway obstruction as a result of external compression.

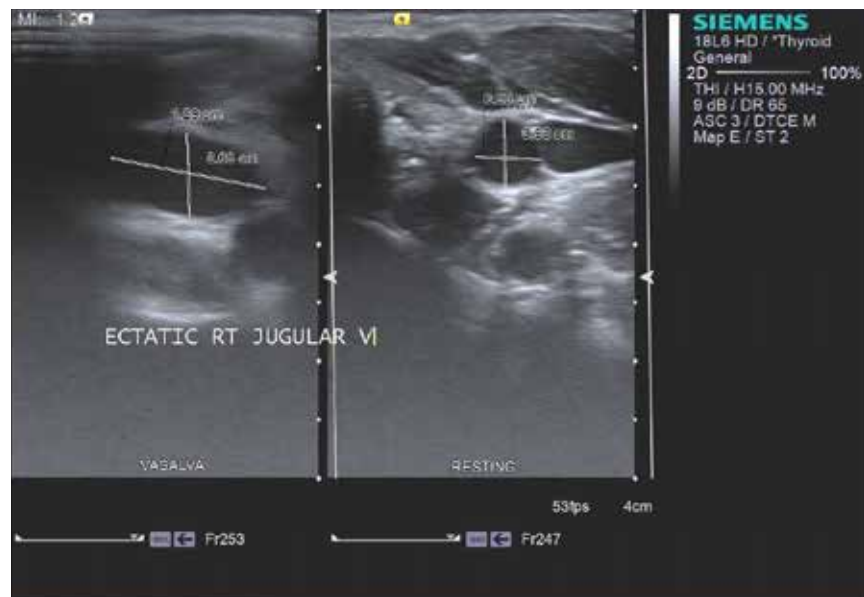


Figure 3. USG images of the expanded IJV during Valsalva as compared to the resting diameter. Expanding ration (Anteroposterior): $(0.680.53)/0.53 = 28.3\%$, (Width): $(1.290.53)/0.53 = 143.4\%$

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