

# JUGULAR VENOUS ANEURYSM - A RARE CAUSE OF NECK SWELLING

M K Dhillon, Y P Leong

## ABSTRACT

An 8-year old boy presented with a right neck swelling which appeared only intermittently. The swelling was well demonstrated by the Valsalva manoeuvre. The differential diagnosis include a laryngocele, a superior mediastinum tumour or cyst and a venous aneurysm. Plain radiography, computerized tomography, ultrasonography and venography were performed. A diagnosis of venous aneurysm was confirmed. Ultrasonography was the best modality for imaging of this rare condition. It is non-invasive and it will also delineate the extent of the lesion. The treatment is expectant. Surgery is reserved for cosmesis and symptomatic aneurysms.

**Keywords:** Venous aneurysm, jugular vein

SINGAPORE MED J 1991; Vol 32: 177-178

## INTRODUCTION

Venous aneurysms are usually seen in association with previous trauma or diseases involving contiguous veins in the lower limbs in adults. Venous aneurysms in children are rare and occur most frequently in the mediastinal and cervical regions. The swelling usually poses a problem in diagnosis because of the frequency of other neck lesions in children. The condition was first described in 1928 in a five-month old infant<sup>(1)</sup>.

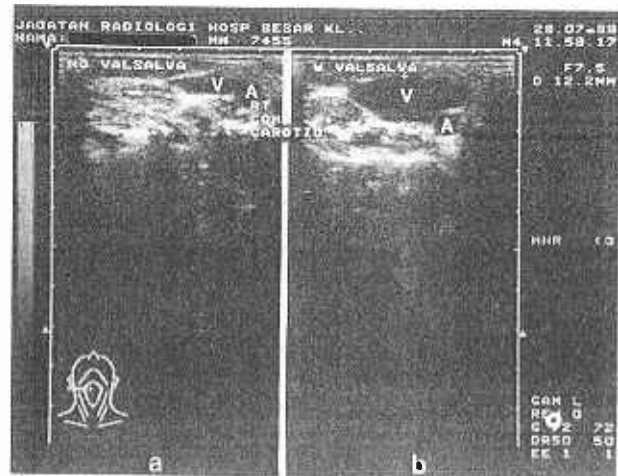
## CASE REPORT

An 8-year old Malay boy presented with a one year history of a swelling which appeared intermittently on the right side of his neck. The swelling became prominent when he talked, took a deep breath or coughed. On examination, there was no obvious swelling but in the Valsalva manoeuvre there was a fusiform swelling at the lower part of the anterior border of the sternocleidomastoid muscle. The swelling measured 5 x 4 cm when it was fully distended.

A provisional diagnosis of a laryngocele was made. However, direct and indirect laryngoscopy were normal. Plain radiographs of the neck in the antero-posterior and lateral views, done in the Valsalva manoeuvre, were also unremarkable. Computerized tomograms of the neck with intravenous contrast did not reveal any abnormal mass except that the right internal jugular vein was considerably larger than the left. A jugular venous aneurysm was suspected. An ultrasound examination of the neck vessels was performed using a 7.5 MHz probe and a 3.5 MHz Doppler probe. This showed that the neck swelling was a focal aneurysm of the internal jugular vein. The change

in size of this aneurysm was obvious when the patient performed the Valsalva manoeuvre (Fig. 1). A contrast study performed via a right femoral vein puncture confirmed the aneurysm of the right internal jugular vein (Fig. 2). The patient remained well and will be followed up regularly.

**Fig 1 - Transverse Ultrasound scan of right side of the neck: (a) at rest showing the internal jugular vein (V) lying anterolateral to the common carotid artery (A); and (b) in Valsalva manoeuvre, showing dilatation of the internal jugular vein.**



## DISCUSSION

The most common cause of a swelling in the neck that appears only on straining is a laryngocele. Venous enlargement presents in a similar manner and the third consideration would be a tumour or cyst of the superior mediastinum. The first possibility is excluded by a normally situated trachea and absence of air in the swelling. The third possibility is excluded by a normal chest X-ray.

Venous aneurysm may involve the internal or external jugular vein, an anterior jugular branch or a superficial cervical communicating vein<sup>(2)</sup>. They all increase in size during coughing, crying, the Valsalva manoeuvre and compression proximal to the swelling.

The possible causes of dilation of the internal jugular vein include an anomalous reduplication<sup>(3)</sup>, pressure on the vein by the scalenus muscle<sup>(4)</sup> and compression of the innominate vein by the inflated cupola of the lung against the clavicle<sup>(5)</sup>. In most instances it is idiopathic. Histological examination of the

Department of Radiology  
General Hospital  
50300 Kuala Lumpur  
Malaysia

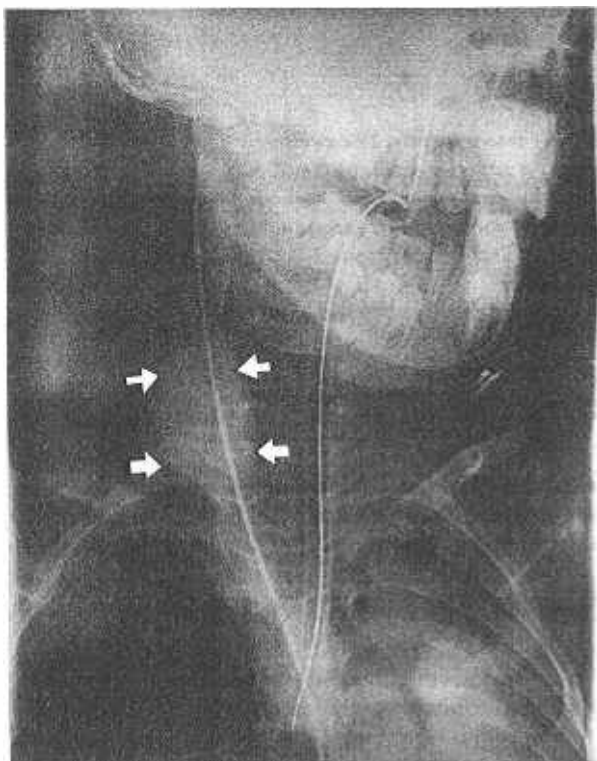
M K Dhillon, MBBS(Mal), M Med(Rad)(Mal)  
Clinical Specialist in Radiology

Department of Surgery  
National University of Malaysia  
(Universiti Kebangsaan Malaysia)  
50300 Kuala Lumpur  
Malaysia

Y P Leong, MBBS(Monash), FRCS(Ed), FRCS(Eng)  
Associate Professor and Consultant Surgeon

Correspondence to : Assoc Prof Y P Leong

**Fig 2 - Injection of contrast in the right internal jugular vein with the Seldinger technique showing evidence of venous aneurysm.**



aneurysm showed that all layers of the wall of a vein are present<sup>(6,7)</sup>. However, several focal changes such as elastic tissue dysplasia, intimal thickening, increased amount of connective tissue and endothelial cells and prominence of smooth muscle cells have been reported<sup>(8)</sup>.

Ultrasonography remains the best method of evaluation in

these cases. It is non-invasive and accurate and provides a rapid imaging technique not only in diagnosis but also to delineate the extent of the aneurysm and its relationship with surrounding structures in the neck<sup>(9,10)</sup>. Contrast studies either by a femoral vein puncture or direct puncture of the aneurysm will also visualize the aneurysm but these are best reserved for patients going for surgery<sup>(11)</sup>.

The aneurysm may progressively increase in size and the patient may complain of discomfort following activity. However serious complications, such as rupture or infection have not been reported<sup>(12)</sup>. Surgical excision should be reserved for cases where the aneurysm is extensive or when there is marked discomfort. Surgery may also be indicated for cosmetic reasons. In the asymptomatic cases, treatment should be limited to reassuring the patient or the parents.

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