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Intermittent Trans-Fascial Cervical Herniation of Normal Mediastinal Thymus Simulating Laryngocele or Pharyngeal Diverticulum in an Infant

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Abstract

An unusual rare case of intermittent trans-fascial cervical herniation of the normal mediastinal thymus in an infant girl which initially mimicked laryngocele or pharyngeal diverticulum and an ultrasound scan showed herniation of normal mediastinal thymus gland through a fascial defect through cervical fascia is presented.

Keywords: Cervical mass; Hernia; Infant; Laryngocele; Mediastinum; Neck; Pharyngeal diverticulum; Thymus herniation; Ultrasound; Valsalva maneuver

Introduction

Cervical region is a traffic jam area and known to have many congenital anomalies [1,2]. The thymus related lesions are rare but may present in infancy and childhood [3,4]. Intermittent superior-lateral right cervical migration or herniation of normal mediastinal thymus is rarity in which the thymus herniates into the neck during increased intrathoracic pressure, such as during crying. laughing or a Valsalva maneuver. It's a benign that can present as an intermittent swelling in the cervical region. We wish to present such a case in an infant simulating laryngocele or a pharyngeal diverticulum.

Case Report

An otherwise healthy 10-month-old girl was noted to have intermittent large swelling in the right side of inner lower neck especially while laughing, crying, straining or coughing during an episode of upper respiratory tract infection by the parents. Parents were seen by the general practitioner who suspected laryngocele or a pharyngeal diverticulum and referred to our institution for further management. On examination, vital signs were normal and had signs of upper respiratory tract infection with an intermittent swelling over right lower medial cervical region during coughing, crying and Valsalva maneuver (Figure 1B). It disappears with normal appearance when the patient settles down (Figure 1 A, Video). Patient had congested throat and few small firm palpable non-specific cervical lymph glands bilaterally but no other associated anomalies, any hernia at other places or any systemic abnormalities.

An ultrasound scan showed an intermittent herniation of structurally normal right lobe of thymus gland during Valsalva maneuver with a defect in the investing cervical fascia in the medial portion with most part of the right lobe herniating in right inferomedial aspect (Figure 2). The parents were reassured about this medical curiosity and rare lesion and a conservative approach

advised. Follow up at six years showed asymptomatic patient and the size of the thymus gland has gone smaller on ultrasound and no more herniating intermittently but a small herniation can be seen on forceful Valsalva maneuver.

Figure 1: *Clinical photographs. A at rest B. During crying.*

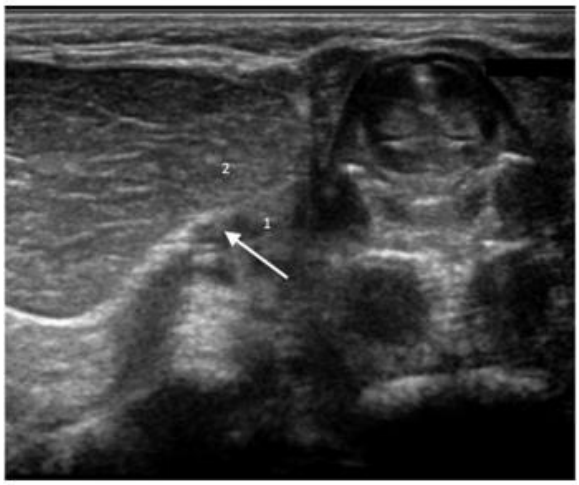

Figure 2: *Ultrasound scan during crying. Please note the defect in the hyperechoic linear shadow of cervical fascia medially (white arrow) through which cervical herniation of right lobe (number 2) of normal mediastinal thymus (number 1).*

Discussion

The thymus is a specialized lymphoid gland normally situated in the anterior mediastinum. Location abnormalities of the thymus, such as the trans-facial cervical supero-lateral herniation of a mediastinal thymus, could be one of the reasons for the appearance of cervical masses in infants and children, raising concerns and providing a challenge among patients, parents, professionals such as clinicians and radiologists alike [5]. A diagnosis can usually be made based on the history of the mass only appearing during a raised intrathoracic pressure such as laughing, crying, or a Valsalva maneuver and its unique ultrasound findings. However, we do not recommend a computerized tomography (CT) scan or magnetic resonance imaging (MRI) in infants due to radiation dose and general anesthesia risks respectively. Our case supports the use of ultrasound as a minimal invasive, non-ionizing radiation in both diagnosis and follow-up of thymus location abnormalities. With regards to differential diagnosis, it's important to differentiate this condition from other causes of anterior neck swelling, such as ectopic cervical thymus and other cervical congenital and acquired lesions and neighboring organs. Only five cases have been reported in the literature and may be associated with other location hernia in healthy children [6].

Treatment is conservative. Surgery can usually be avoided. However, if the diagnosis is uncertain, an FNAB under ultrasound guidance under local anesthesia may be necessary to rule out malignancy in adolescent or adult population and thymus has specific and distinct histological appearance. Our case advocates a minimal invasive diagnostic tool and conservative management approach. Risk of associated surgery for diagnostic or therapeutic use can have severe complications, such as damage to the innominate artery or recurrent laryngeal nerve. Thymectomy can cause immunodeficiencies in the post-operative period.

Conclusion

The knowledge of this clinical entity of intermittent cervical mass in infants and children is essential for a thorough differential diagnosis and for preventing unnecessary radiation, general anesthesia or invasive procedures. The thymus gland has a unique and distinct ultrasound appearance that is the key to detect thymic in ectopic locations. A detailed and accurate ultrasound could be conclusive and definitive tool for the diagnosis, with no need for further and potentially risky diagnostic and explorative procedures.

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