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Review Article

Thyroglossal duct cysts in children: Sonographic features every radiologist should know and their histopathological correlation

Emilio Inarejos Clemente [a,*], Modupe Oyewumi [b], Evan J. Propst [c], Bo-Yee Ngan [d], Mary-Louise Greer [e]

[a] Hospital Sant Joan de Deu, Department of Diagnostic Imaging, University of Barcelona, Av. Sant Joan de Deu, 2, Esplugues de Llobregat, Barcelona 08950, Spain
[b] The Hospital for Sick Children, Department of Otolaryngology, Head and Neck Surgery, University of Toronto, 555 University Ave, Toronto, ON, M5G1X8, Canada
[c] The Hospital for Sick Children, Department of Otolaryngology, Head and Neck Surgery, University of Toronto, 555 University Ave, Toronto, ON, M5G1X8, Canada
[d] The Hospital for Sick Children/Research Institute, Laboratory Medicine and Pathobiology, University of Toronto, 555 University Ave, Toronto, ON, M5G1X8, Canada
[e] The Hospital for Sick Children, Department of Medical Imaging, University of Toronto, 555 University Avenue, 2nd floor, Toronto, ON, M5G1X8, Canada

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ABSTRACT

Distinguishing between thyroglossal duct cysts (TGDC) and dermoid cysts (DC) sonographically can be challenging. We illustrate the three sonographic features in neck masses in children recently identified as being most suggestive of TGDC (septa, irregular wall and solid elements) and their corresponding histopathology. These three variables form a proposed predictive model for TGDC as a guide to surgical intervention. Pediatric radiologists should be familiar with these key imaging features, as compared with other imaging features described in TGDC also illustrated here, which are less discriminating.

Contents

* Corresponding author at: Hospital Sant Joan de Deu, Department of Diagnostic Imaging, University of Barcelona, Barcelona, Spain.
E-mail addresses: einarejos@sjdhospitalbarcelona.org (E. Inarejos Clemente), d.oyewumi@mail.utoronto.ca (M. Oyewumi), evan.propst@sickkids.ca (E.J. Propst), bo.ngan@sickkids.ca (B.-Y. Ngan), mary-louise.greer@sickkids.ca (M.-L. Greer).

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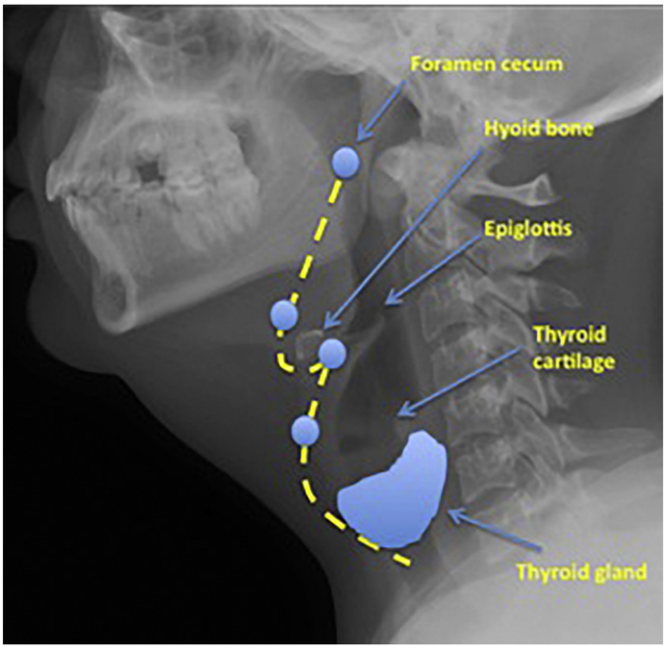

Fig. 1. Lateral neck X-ray with dashed line indicating embryologic path of thyroid descent.

1. Introduction

Ultrasound (US) is commonly used to assess midline neck masses in children. Even though thyroglossal duct cysts (TGDC) are the most common midline neck masses in children [1–6], it is important to distinguish TGDC from dermoid cysts (DC) or lymph nodes (LN) in order to plan an appropriate treatment strategy. For example LN in this area are commonly observed or treated with antibiotics whereas DC are simply excised and TGDC are removed via Sistrunk procedure. This involves resecting the entire tract, middle of the hyoid bone and a cuff of tongue musculature. Oyewumi et al. recently described three clinically reliable ultrasound features that were able to discriminate between TGDC and DC [7]. A predictive model was

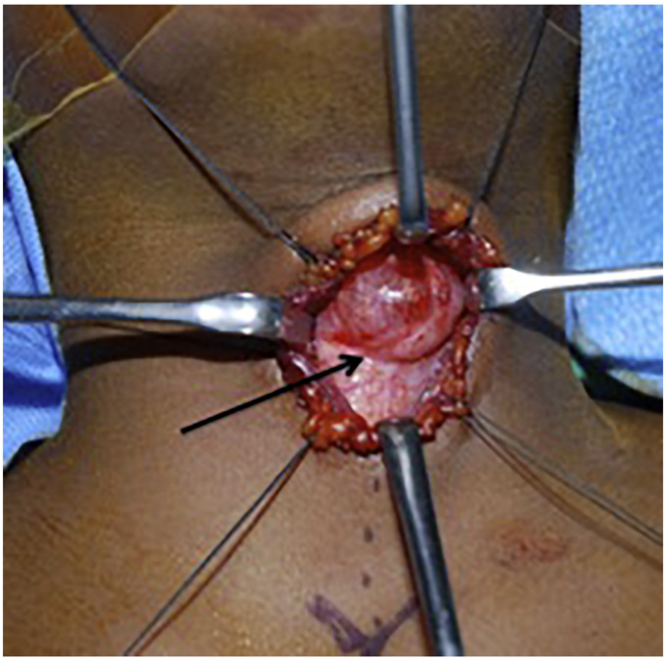

Fig. 2. Midline neck incision showing a well-defined TGDC (arrow).

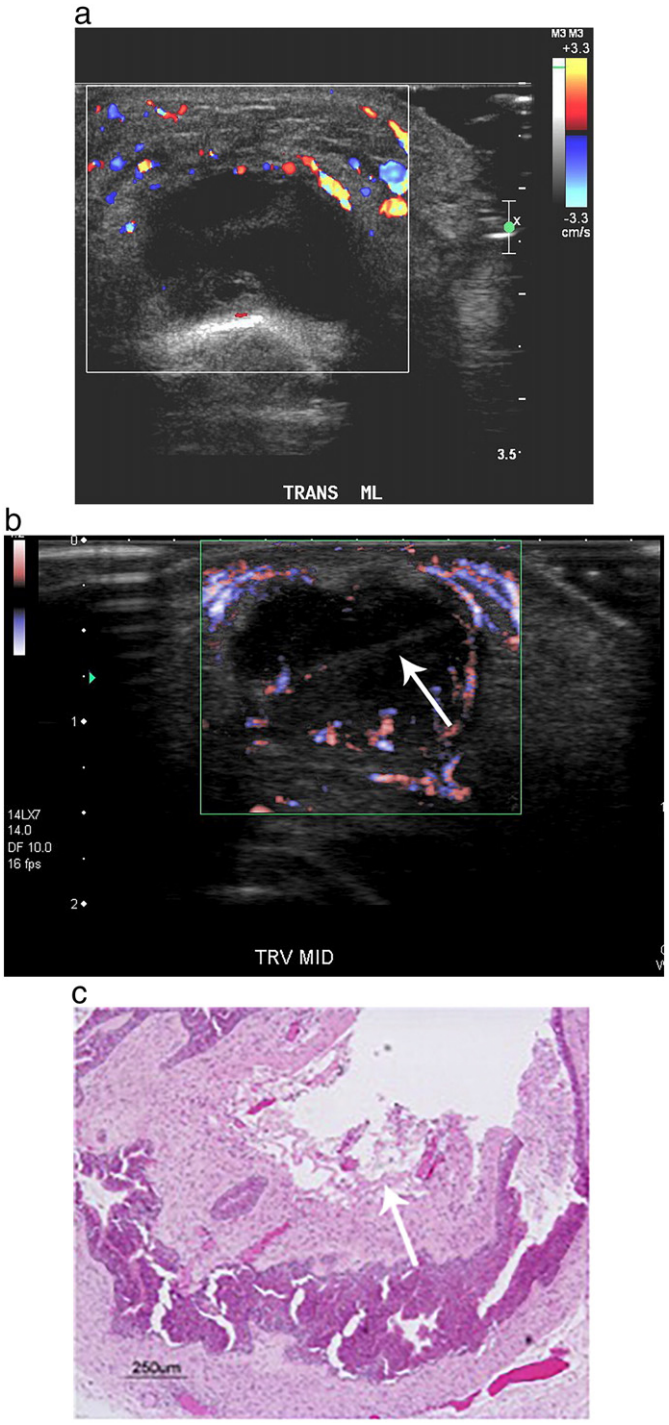

Fig. 3. TGDC in a 14-year-old female. US of neck in (a) sagittal and (b) axial planes both with Doppler. A linear echogenic band consistent with an internal septation (arrow) is seen in two planes. The cyst is otherwise anechoic with peripheral but no central flow. (c): Pathologic specimen with H&E stain at 250 µm shows septal protrusion (arrow) into the cyst cavity (*).

fashioned whereby each variable was scored as 0 or 1, with a total score calculated (septae + irregular wall + solid components = TGDC [or SIST] score). A scoring system whereby 0 = suggestive of DC; 1 = suggestive of TGDC; and ≥2 = highly suggestive of TGDC, was proposed.

The purposes of this paper are: 1) to illustrate these key sonographic features to raise awareness of their value for broad clinical application and 2) compare preoperative sonographic features with