Simultaneous thyroglossal duct cyst with parathyroid cyst - a case report

Chen Gengyu (✉ 244410707@qq.com)

Case Report

Keywords:

Posted Date: December 2nd, 2022

DOI: https://doi.org/10.21203/rs.3.rs-2325529/v1

License: ☺️ This work is licensed under a Creative Commons Attribution 4.0 International License. Read Full License
Abstract

Thyroglossal duct cysts (TDC) are common congenital deformities of the neck in children. Most of them are cysts formed by the thyroglossal ducts that do not disappear and degenerate in the early embryonic stage, and some residual structures are formed \cite{1}. TDC exists alone and is rarely complicated by other congenital embryonic malformations. Only a few reports of TDC with branchial cleft cysts, thyroid cancer, thyroid hematoma, and epidermoid cysts have been reported \cite{2-5}. However, the patient coexisted with TDC and parathyroid cyst (PC), a rare disease that has never been reported in the weapons literature. Therefore, we report a patient with a simultaneous TDC and a PC to explore the correlation between the two congenital anomalies.

Background

Thyroglossal duct cysts (TDC) are common congenital deformities of the neck in children. Most of them are cysts formed by the thyroglossal ducts that do not disappear and degenerate in the early embryonic stage, and some residual structures are formed \cite{1}. TDC exists alone and is rarely complicated by other congenital embryonic malformations. Only a few reports of TDC with branchial cleft cysts, thyroid cancer, thyroid hematoma, and epidermoid cysts have been reported \cite{2-5}. However, the patient coexisted with TDC and parathyroid cyst (PC), a rare disease that has never been reported in the weapons literature. Therefore, we report a patient with a simultaneous TDC and a PC to explore the correlation between the two congenital anomalies.

Case Report

A 47-year-old woman presented to clinic in April 2021 with a neck tumor which she had noticed 5 days earlier. Clinical examination revealed a 4cm-diameter soft mass under the jaw, which could be moved up and down with swallowing and tongue extension, and a 2-cm soft mass could be palpated under the left thyroid lobe. Preoperative examination of blood parathyroid hormone, serum calcium and serum phosphorus were all at normal levels. Ultrasonography revealed a thylohyoid cyst and a cystic mass in the left thyroid lobe, see Figures 1 and 2. CT scan of the neck showed a low-density lesion anterior to the left thyroid cartilage, and a lesion posterior to the lower pole of the left thyroid lobe, as shown in Figures 3 and 4. After surgical treatment, the pathology revealed a cervical thyroglossal duct cyst and a left lobe parathyroid cyst, as shown in Figure 5. The patient was followed up for 1 year without significant recurrence.

Discussion

TDC are common in clinical practice, while PC are rare, and are easily misdiagnosed as thyroid cysts. When the embryo develops to the sixth week, the thyroglossal duct degenerates on its own, leaving only a shallow depression at its starting point, the cecum. If the degeneration of the thyroglossal duct is incomplete during this process, the remaining epithelium may form a thyroglossal duct cyst in the course
of the anterior median neck from the base of the tongue to the thyroid. The pathogenesis of PC is still unclear, but the pathogenic factors currently considered include: (1) the third or fourth pharyngeal sac remains during embryonic development \[^6\]; (2) the residual Kursteiner's canal develops; (3) the fusion of microcysts \[^7\]; hemorrhage or degeneration of parathyroid adenoma \[^8\]; parathyroid secretions are retained in vesicles \[^9\]. Most scholars support the first hypothesis, because the third or fourth pharyngeal sac can form cysts during embryonic development, and such cysts are characterized by thin walls and transparent fluid inside, while other hypotheses form cysts with thick walls, the cyst fluid is bloody or purulent. In this case, both thyroglossal duct cysts and parathyroid cysts were combined, and the patient had a history of congenital malformations such as primary iris cysts, which further indicated that there was a correlation between the embryonic origins of these three diseases.

The classic Sistrunk procedure is currently the preferred method for the treatment of thyroglossal duct cyst, which significantly reduces the postoperative recurrence rate \[^10,11\]. The treatment of NPC has not yet been finalized. The current treatment methods include puncture aspiration or absolute ethanol ablation, surgical resection, and regular review. Surgical resection has gradually become the mainstream method for the treatment of NPC. The traditional anterior cervical approach surgery can completely remove the cyst and relieve the compression symptoms of the patient, which is a safe and effective treatment method \[^12,13\]. In this case, no recurrence was found in the 1-year follow-up after surgical resection.

**Conclusion**

Simultaneous parathyroid cysts and thyroglossal duct cysts is very rare, and the embryologic origins of TDC and inferior PC appear to be associated.

**Declarations**

**Compliance with Ethical Standards**

CHEN Gengyu collected the clinical data and wrote the manuscript and analyzed the data. There are no competing interests for all of the authors. All patients were enrolled with informed consent and the study was approved by the Ethics Committee. Patients provided written informed consent for the publication of their data.

**References**


Figures
Figure 1

The cystic echo at the left front of the submandibular trachea of the patient.
Figure 2

The cystic mass at the lower pole of the left thyroid lobe of the patient.
Figure 3

The hypodense foci at the left front of the thyroid cartilage of the patient.
Figure 4

The lesion at the rear of the lower pole of the left thyroid lobe of the patient.
Figure 5

Histochemistry: CGA (+) SYN (-) TG (-) TTF-1 (-) CK19 (-), KI-67 about 2%, consistent with parathyroid cyst.