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Adolescent papillary thyroid carcinoma. A case report

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ABSTRACT: A 17-year-old female patient, with a thyroid nodule one year ago, ultrasound found a nodule in the right thyroid lobe TIRADS III. On physical examination, nodule in the right lobe of the thyroid measuring 3cm in diameter with regular borders, semi-fixed, hard, without pain on palpation. The result of fine needle aspiration biopsy (FNAB) was papillary thyroid carcinoma, Bethesda VI. Total thyroidectomy was performed; rapid intraoperative histology was positive for probable papillary carcinoma malignancy, level VI lymph node dissection was performed. Definitive report of histopathology was papillary thyroid carcinoma. She received treatment with I 131, classified as T3N0M0, annual follow up without tumor activity.

KEYWORDS: Thyroid cancer, papillary carcinoma, thyroid nodule.

Case Report

Oncologic Surgery

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Introduction

Thyroid cancer (TC) is the most frequent endocrine neoplasm, with indolent behavior; in adults it represents 95% of all endocrine cancers [1]. In Mexico, thyroid cancer represented 2.5% of all malignant neoplasms, with an incidence of 3 per 100,000 inhabitants and a mortality of 0.6 per 100,000 inhabitants [2-3].

The papillary and follicular histological types are the most common, with papillary thyroid carcinoma (PTC) responsible for 75-80% of these [2]. Only 10% of cases occur in people less than 21 years of age, with an estimated incidence in pediatrics of 0.54 cases per 100,000 inhabitants [4].

The biological behavior of PTC in young patients is characterized by being diagnosed at a more advanced stage. However, it shows a good response to treatment with total thyroidectomy followed by therapy with iodine 131 (I 131) and very low mortality when receiving timely treatment [1]. Survival is 95% at 20 years and the disease-free progression rate is 65-70% at 5 years [5].

Among the risk factors for PTC we find exposure to ionizing radiation, low-iodine diet, obesity and genetic predisposition [6]. Histologically, it is characterized by papillae and typical nuclear changes[7]. The prognosis depends on the degree of invasiveness [8]. In young people, the most common sites of metastasis are the lymph nodes, less frequently distant (7%) in the lung, bone, liver and brain [9, 10].

In addition to a thorough history and physical examination, BAAF is the best study for the initial evaluation of a thyroid nodule, its sensitivity, specificity and positive predictive value for malignancy exceed 90%; ultrasound (US) guides the biopsy and the results are evaluated using the TIRADS system (thyroid imaging reporting and data system).

Chest radiography is useful for documenting metastatic lesions [2]. Even in young patients, the presence of distant metastases decreases survival by 50%. The objective of this study is to document the case of a young patient diagnosed with PTC early and treated with total thyroidectomy plus level VI lymph node dissection with a curative result.

Case report

A 17-year-old female patient with no significant pathological history, admitted to the internal medicine service for presenting a nodule in the neck of one year's evolution with a diagnosis of grade

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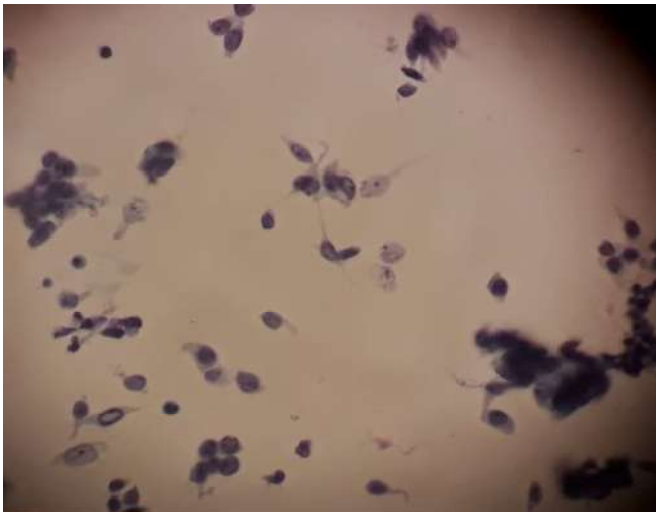

Figure 1. Microscopy of cells obtained by FNAB: Cells with papillary arrangement and some with intranuclear inclusions called "Orphan Annie eyes" characteristic of this lesion.

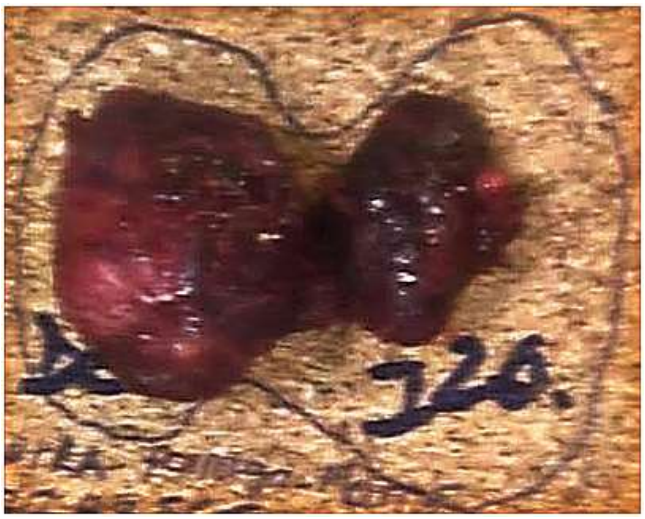

Figure 2. Macroscopic lesion: left lobe presence of a soft nodule, 1cm diameter, and right lobe with an enlarged, hard nodule of approximately 3cm with a malignant appearance.

II goiter. Ultrasound of the soft tissues of the neck reports an echogenic nodular image, hard, with lobulated edges with Doppler vascularity in the right thyroid lobe of 26x15.3x17.8mm in diameter, volume of 18cc, left lobe volume 3.2cc, preserved isthmus, TIRADS III ultrasound diagnosis.

On physical examination: in the neck, nodule in the right lobe of the thyroid gland, approximately 3 cm in diameter, with regular edges, semi-fixed, hard, without pain on palpation. A FNAB ultrasound-guided was performed, showing an echogenic thyroid nodule with peripheral vascularization with regular borders of 25x23mm, histopathology report was papillary thyroid carcinoma, Bethesda VI (figures 1 - 2). After joint analysis with the department of oncology and oncological surgery, a surgical resolution was decided. Total thyroidectomy was performed; rapid intraoperative histology reported positive for probable papillary carcinoma malignancy, so level VI lymph node dissection was performed (figures 3-4). During surgery, the left lobe showed the presence of a soft nodule 1cm diameter, and an enlarged right lobe, with a hard malignant-looking nodule of approximately 3 cm diameter, and level VI lymph nodes with abnormal macroscopic characteristics, enlarged, hard, and malignant-looking.

In the postoperative period, the evolution was satisfactory; he did not present signs of hypocalcaemia: Chvostek's and Trousseau's signs were absent, she did not present dysphonia; penrose drain with adequate serohematic debit, the laboratory results reported calcium 9.2mg/dl, parathormone 13mg/dl, magnesium 1.78, albumin 4.2, so she was discharged after 48 hours with analgesic and levothyroxine 100mcg daily.

Follow up 14 days with definitive histopathology report that confirmed the diagnosis of papillary thyroid carcinoma, classic variant, margins: infiltrates the capsule and reaches the surgical margin, no invasion, extrathyroid extension: minimal. Level VI: three possible lymph nodes are isolated: negative for malignancy (figures 5 - 6).

According to the national comprehensive cancer network (NCCN) guidelines, it requires treatment with I 131 and surveillance, classified as T3N0M0, patient at the moment in annual follow up without tumor activity.

Discussion

PTC is the most common endocrine neoplasm in adults with an annual incidence ranging between 0.5 and 10% per 100,000 populations around the world; it is uncommon in adolescents in whom it presents with torpid evolution [11]. Robert et. al., describe that all tumors equal to or greater than 1 cm must undergo a total thyroidectomy, with dissection of the central compartment and exploration of the remaining regional lymph node chains, with extensive lymph node dissection when its involvement is evident [12].

The World Health Organization (WHO) defined PTC as a malignant epithelial tumor that shows follicular cell differentiation, structure with papillary and follicular structures, as well as characteristic nuclear changes [4]. The key to its diagnosis is the nuclear characteristics, equivalent to the papillae, while the presence of vascular or capsular invasion is not a necessary requirement [4].

According to Garcia et. al., survival data for papillary thyroid carcinoma is 80-90% at 10 years, 70% at 20 years, and 60% at 30 years. During follow-up, 5-20% of patients develop local or regional recurrences, and 5-10% distant metastases that generally appear during the first 5 years, although they may appear several years later [9]. The risk of recurrence and the appearance of long-term metastases determine the follow-up of these patients; it must be continued throughout life [9].

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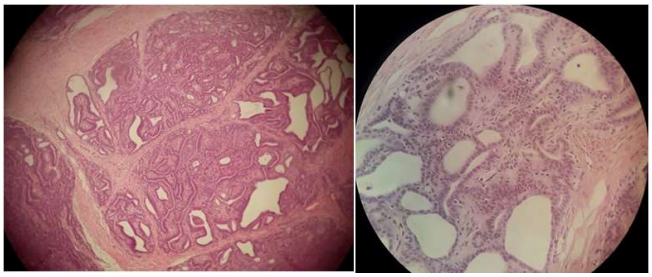

Figure 3. Hematoxilyn and Eosin stain showing a neoplasm cells with empty-looking nuclei and others with central indentations in the form of coffee beans is identified, the arrangement is papillary with fibrovascular stems.

Conclusion

Papillary thyroid cancer is a rare endocrine tumor in children under 18 years of age, where it is usually detected in advanced stages, with a 60% survival rate. An early diagnosis and adequate surgical resolution can achieve a curative result.

Conflicts of interests

The authors declare no conflict of interest.

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References

1. Díaz GEJ, Reyes-Cordero GC, Vázquez GP, et al. Cáncer papilar de tiroides diagnosticado por metástasis clavicular. Med. Int. Méx. 2012;28 (1):73-76.
2. Thyroid Cancer Survivor's Association Inc. Guia Basica del Cancer Tiroideo [Internet]. 2013. 1-56 p. Available from: http://www.thyca.org/download/document/416/TCBasics-Esp.pdf
3. Puerto Lorenzo José Alberto, Torres Aja Lidia, Cabanes Rojas Eslinda. Carcinoma de tiroides. Presentación de un caso y revisión de la literatura. Rev. Finlay [Internet]. 2019 Sep; 9(3): 232-236. Disponible en: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S2221-24342019000300232&lng=es. Epub 02-Sep-2019.
4. Teijeiro JC, Sobrinho-Simoes M. Carcinoma papilar de la glándula tiroides Problemas en el diagnóstico y controversias. Rev Española Patol [Internet]. 2016;36(4):373–82. Available from: http://www.patologia.es/volumen36/vol36-num4/pdf patologia 36-4/36-04-04.pdf
5. Pitoia F, Califano I, Vázquez A, Faure E, Gauna A, Orlandi A, et al. Consenso intersocietario sobre tratamiento y seguimiento de pacientes con cáncer diferenciado de tiroides. Rev Argent Endocrinol Metab. 2014;51(2):85–118.
6. Martín T, Carlos J. Guía clínica para el manejo de pacientes con carcinoma diferenciado de tiroides de bajo riesgo. Rev Endocinología y Nutr. 2015;62(6).
7. General C de S. Diagnóstico y Tratamiento del Tumor Maligno de Tiroides. Catálogo Maestro de Guías de Práctica Clínica [Internet]. 2015;IMSS-166-0:1–5. Available from: http://www.cenetec.salud.gob.mx/descargas/gpc/CatalogoMaestro/166_GPC_TUMOR_MALIGNO_TIROIDEO/Gpc_tumor_tiroideo.pdf
8. Ferrada C Clarita, Godoy C Claudia, Martínez A, García B Hernán. Cáncer tiroideo papilar: Reporte de 4 casos familiares. Rev. chil. pediatra [Internet]. junio de 2014 [citado el 24 de mayo de 2022]; 85(3): 351-358. Disponible en: http://www.scielo.cl/scielo.php?script=sci_arttext&pid=S0370-41062014000300012&lng=es. http://dx.doi.org/10.4067/S0370-41062014000300012.
9. Granados GM, León TAM, Guerrero HFJ, et al. Cáncer diferenciado de tiroides: una antigua enfermedad con nuevos conocimientos. Gac Med Mex. 2014;150(1):65-77.
10. Contreras CNA, Mancillas ALG, Hernández OJ, et al. Caso 07-2005. Hombre con nódulo tiroideo izquierdo. Med Sur. 2005;12 (3):165-171.
11. Limaiem F, Rehman A, Mazzoni T. Papillary thyroid carcinoma. In: StatPearls [Internet]. Treasure Island (FL): Post by StatPearls; 2022 ene-. Available in: https://www.ncbi.nlm.nih.gov/books/NBK536943/
12. Robert I. Haddad MD 1 , Christian Nasr MD 1 , Lindsay B. et al. NCCN Guidelines Perspectives: Carcinoma of the Thyroid, Version 2.2018. NCCN. 2018;16(12):1429-1440. Available in:https://doi.org/10.6004/jnccn.2018.0089

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