CASE REPORTS

Chondroma of the larynx associated to exostosis of the hyoid bone

Francisco Pons Rocher, Gracia Pastor Canicio, Marina Carrasco Llatas, Fernando Guallart Doménech, José Dalmau Galofre, Estellés Ferriol J. E.

INTRODUCTION

The cartilaginous tumours of the larynx are infrequent, they represent less than 1% of all laryngeal tumours[1,2]. There have been published approximately 250 cases from its first description in 1882 to 1989, 28% of them were chondrosarcomas and the rest were chondromas[3,4]. The chondroma and the chondrosarcoma of low grade are the most frequent[2].

The laryngeal chondroma is a very rare benign neoplasm that can manifest as a cervical mass or, if it localizes in the upper airway it produces a progressive slow obstruction with dyspnea or dysphonia. The most frequent location is the posterior plate of the cricoid cartilage; the next more frequent locations are the thyroid cartilage, arytenoid and epiglottis. Appearance of a chondroma in the epiglottis is extremely rare[5,6].

About the diagnosis it is difficult to obtain samples for biopsy by microlaryngoscopy due to its consistency and its submucous localization. The radiology is very useful in the diagnosis, specially the CT. The treatment of choice is surgery by local removal which can be performed by microlaryngoscopy or by open surgery[4]. Usually the surgical treatment keeps a good fonatory function in most of the cases[7]. In some cases, it is necessary to remove the larynx when the tumours have a big size or when they are recurrent[1].

The prognosis is good if the surgery is radical[8], however a long term follow up is necessary[6]. The cartilaginous tumours of the larynx must be considered in the differential diagnosis of the upper airway obstructions[9].

CASE REPORT

A male patient of 18 years old who has been studied in our ENT Department since he was 15 years old had a tumour located on the left cervical side, harden, of 3 months of evolution, which had a progressive slow growing, not painful, and caused local intermittent troubles, neither dysphonia nor dysphagia. No personal antecedents of interest.

In the medical examination we observed a nodule in the region of the superior cornu of the thyroid cartilage, of 1.5 cm of diameter, which consistency was hard stony, not painful, immobile, that moved upward with swallowing, without signs of skin inflammation. The laryngoscopy was normal.

We carried out the following complementary tests:
Fine needle aspiration biopsy: impossible to obtain material because of the hardness of the tumour.
Echography: hypoechoic image measuring 1.1 cm × 0.7 cm.
Cervical CT: enlargement on the left side of the hyoid bone of bony aspect and homogeneous density, without calcification in its inner, there was an enlargement of the thyrohyoid musculature that displaced forward the platisma coli. We observed a very dense nodular structure, on the left side of the thyroid cartilage that could correspond to a focal calcification in this cartilage (Figure 1).

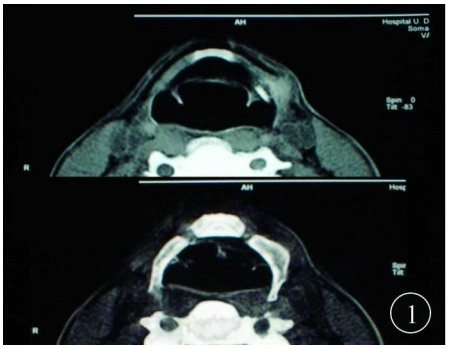
We performed a cervicotomy and observed a round tumour on the superior left apophysis of the thyroid cartilage and an enlargement of the greater cornu of the hyoid bone. We removed the left greater cornu of the hyoid bone together with the hyoid tumour and the left superior greater cornu of the thyroid cartilage (Figure 2). The evolution was favorable. The histopathologydiagnosed:

Cartilaginous tumour of the thyroid: fragment

ENT Department, Dr. Peset Hospital, Valencia 46702, Spain
Correspondence to Francisco Pons Rocher, C/ Rótova No 50, 3er piso, pta 6, Valencia 46702, Spain
E-mail: francisco. ponsrocher@ gmail. com

measuring 2 cm × 1.3 cm that corresponded to laryngeal chondroma.

Exostosis of the hyoid bone: fragment of the greater cornu of the hyoid bone measuring 2.3 cm with an area spindle shaped compatible with osteocartilaginous exostosis.



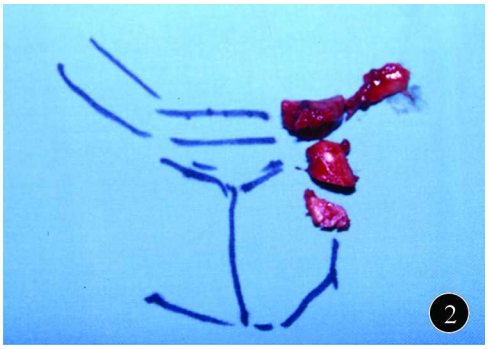


Figure 1 CT in axial cuts. In the superior image it can be observed the chondroma of the superior greater cornu of the left thyroid lamina and in the inferior image the exostosis of the greater cornu of the hyoid bone

Figure 2 Surgical specimen of the exostosis of the hyoid bone and the chondroma of the thyroid cartilage

DISCUSSION

In the worldly literature until 1976, there have been published 157 cases of cartilaginous tumours of the larynx. Only 37 had been classified as chondrosarcomas, the others were benign[10]. These benign tumours are slow growing and appear predominant in males (4:1) of mean age. They appear more frequently in the cricoid (70%), specially in the posterior plate, and 20% settle in the thyroid cartilage, but can affect to any of the cartilaginous structures of the larynx. These tumours rarely appear in the epiglottis, because its cartilage is more fibrous than hyaline[11].

The histopathology can not reveal the biological behavior of any chondromatous tumour, whether it comes from the bone or from the larynx. The histological criterion of malignancy differ between pathologists. Thus, Goethals, *et al.*[10] reviewed 22 cases of cartilaginous laryngeal tumours treated in Mayo Clinic, and considered that 18 of them had histological characteristics of malignancy. However, the author observed that none of them had metastasized, and only 6 cases had recurrences. That's why, when treating these tumours, the histological criterion of malignancy or benigness must be ignored. Recent findings indicate that the chondroma and the chondrosarcoma of the larynx are intimate related, as synchronously (areas with both kinds of tumour in the same lesion) as metachronously (malign transformation of the chondroma with time). It has been questioned if the gradation of Lichtenstein, Jaffe and Evans, *et al.* should be used in the larynx because this system of gradation was designed for the chondrosarcoma of the long bones. The chondrosarcoma of the larynx seems to behave similar to chondrosarcoma of the phalanges from the extremities because usually they neither metastasize nor cause deaths due to the tumour[12].

About the symptoms, Goethals, *et al.*[10] observed dysphonia in 73% of his patients and dyspnea in 68%. The most frequent finding was a protruding round subglottic mass, covered by intact mucosa. Around 32% of patients suffered a decrease in the mobility of the vocal cords. In 20% of the cases a cervical mass could be appreciated[13].

There has been published a case of congenital chondroma of the larynx in a girl whom only a few hours after birth the tumour caused inspiratory stridor, dyspnea and secondary pneumothorax and lung atelectasis. After intubation and removal of the tumour, the atelectasis and the pneumothorax disappeared spontaneously. The chondromas of the larynx must be considered in the differential diagnosis with the congenital anomalies of the larynx[14].

About the diagnosis tests, simple radiology is useful in the diagnosis, appreciating a round opaque mass, frequently with calcifications, and together with the CT they can demonstrate the lesion and its spread. The CT

is the main radiology test due to its ability in the axial planes to demonstrate the size and spreading of the tumour and invasion of the structures around it [2]. The biopsy can be difficult and be unsuccessful, because of the hardness of the mass and its deph under the mucosa.

In general, the treatment of choice is the complete removal of the lesion with its perichondral capsule and a wide enough border of healthy tissue, which must be realized by the most conservative procedure as possible. Chambers and Friedel [10] do not share this point of view, considering that it must be adopted a more aggressive surgical approach due to the high rate of recurrences cited in the literature. Just as it has been said, benign chondromas and chondrosarcomas must be treated in the same way. The surgery is the only adequate treatment [13]. The radiotherapy and chemotherapy have no therapeutic role [2].

Most of the cases of intralaryngeal location can be treated successfully by thyrotomy. If more than a half cricoid is involved, it is necessary to perform total laryngectomy. The conservative surgical treatment is justified in most of the cases, in spite of the high rate of recurrences, with an appropriate surgical removal avoiding total laryngectomy always as possible [14].

As the most frequent location is the cricoid cartilage (the major structure of support in the larynx and the only complete ring of the superior airway), it can be difficult to keep a good airway after the complete removal of the chondroma. In such cases, it should be considered even the subtotal removal having in mind that several surgical procedures can be needed and that it can be necessary to perform total laryngectomy. The tracheotomy alone is an appropriate way of preservation the airway, keeping a functional voice as long as possible [14].

They never metastasize, and the recurrences are not catastrophic, because they take place after long intervals, and frequently can be treated [14]. Although the malign transformation of chondroma can take place, frequently it is difficult to distinguish between benign lesions and the chondrosarcomas in the histologic preparations. Since simple removal of the lesions in which eventually is demonstrated that they are malign provides essentially the same survival than radical removal initially, only those lesions which histology is high grade malignant must be put down to total laryngectomy [15].

CONCLUSION

We present a case of a chondroma localized on the superior greater cornu of the left lamina of the thyroid cartilage associated to exostosis on the greater cornu of the hyoid bone that manifests as an asymptomatic cervical tumour in a male patient of 18 years old. The cartilaginous tumours of the larynx are infrequent, they represent less than 1% of laryngeal tumours. The most frequent location is the cricoid cartilage. About histology the chondroma and the chondrosarcoma of low grade are the most frequent. The treatment of choice is surgery.

REFERENCES

1. Wang SJ, Borges A, Lufkin RB, et al. Chondroid tumors of the larynx: computed tomography findings. Am J Otolaryngol, 1999, 20: 379 – 382.
2. Franco RA Jr, Singh B, Har-El G. Laryngeal chondroma. J Voice, 2002, 16: 92 – 95.
3. Thome R, Thome DC, De La Cortina RA. Long-term follow up of cartilaginous tumors of the larynx. Otolaryngol Head Neck Surg, 2001, 124: 634 – 640.
4. Saydam, L, Koybasi S, Kutluay L. Laryngeal chondroma presenting as an external neck mass. Eur Arch Otorhinolaryngol, 2003, 260: 239 – 241.
5. Chiu LD, Rasgon BM. Laryngeal chondroma: a benign process with long-term clinical implications. Ear Nose Throat J, 1996, 75: 540 – 549.
6. Yang SW, Lin CY. A peculiar site of chondroma: the epiglottis. Acta Otolaryngol, 2005, 125: 906 – 909.
7. Lemarchand V, Bequignon A, Babin E, et al. Chondromas and low-grade chondrosarcomas of the larynx: a case report. Ann Otolaryngol Chir Cervicofac, 2002, 119: 252 – 256.
8. Mendes DA, Costa P, Smets W. Benign chondroma of the thyroid cartilage. Acta Chir Belg, 1977, 76: 563 – 566.
9. Johnson DB, McGrath F, Ryan MJ. Laryngeal chondroma: an unusual cause of upper airway obstruction. Clin Radiol, 1995, 50: 412 – 413.
10. Goethals PL., Dahlin DC, Devine KD. Cartilagenous tumors of the larynx. Surg Gynecol Obstet, 1963, 117: 77.
11. Hyams VJ, Rabuzzi DD. Cartilaginous tumours of the larynx. Laryngoscope, 1970, 80: 755 – 767.
12. Baatenburg de Jong RJ, Van Lent S, Hogendoorn PC. Chondroma and chondrosarcoma of the larynx. Curr Opin Otolaryngol Head and Neck Surg, 2004, 12: 98 – 105.

13. Cocke EW. Benign cartilaginous tumors of the larynx. Ann Otol Rhinol Laryngol, 1962, 72: 1678.
14. Adler D, Maier H, Paul K. Congenital chondroma of the larynx. Laryngol Rhinol Otol, 1985, 64: 459 – 460.
15. Damiani KK, Tucker HM. Chondroma of the larynx. Arch Otolaryngol, 1981, 107: 399 – 402.

(Editor Anne)