CASE STUDY

Osteoblastoma of the Thyroid Cartilage

Osteoblastoma de cartílago tiroides

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Case

A 64-year-old male, with no underlying disease, consulted with a 4-month history of an asymptomatic slow-growing, left paralaryngeal cervical nodule. A mass was found on palpation adhering in depth under the muscular planes, moving vertically on swallowing, synchronous with the thyroid keel. Nasofibroscopy detected mild bulging of the left vocal fold with glottic mobility.

After ultrasound and FNAC which were of little value, we performed a cervical CT, which reported a heterogeneous nodule with areas of bone density very dependent on the left thyroid ala and other areas of density of intratumoral soft tissue (Fig. 1).

We proposed removal of the lesion, without ruling out laryngectomy if the tumour was malignant, to which the patient did not agree. A well-contained hard nodular lesion was identified in the operating theatre, dependent on the thyroid cartilage, non-invasive, with a cranio-caudal diameter of 43 mm and antero-posterior diameter of 23 mm. It was separated from the larynx by oscillating saw and electrosurgical unit, removing the fragment joined to the cartilage, preserving the internal perichondrium. The post-operative period passed without incident.

Histopathological examination of the specimen reported osteoblastoma (Fig. 2).

Six months after the intervention there was no clinical, endoscopic, or radiological evidence of recurrence of the tumour process.

Discussion

Laryngeal mesenchymal tumours are rare and the WHO classification includes: chondrosarcoma, osteosarcoma, chondroma, and giant cell tumours.1 Osteoblastomas are not included. In fact, in 2010 only 7 cases had been described and no more than 15 to date, it is much more usual for it to be detected in the maxillary area, where it makes up 10% of all neoplasms. Its preferred locations are the spine and sacrum, and to a lesser extent the femur, tibia, and foot.2

While 90% of cases in other locations affect people under 30, with male-to-female predominance of 1:2, in the larynx it affects people over the age of 45, almost exclusively males. Laryngeal osteoblastoma usually presents as an inflammatory tumour which, as it progresses slowly, causes dyspnoea, dysphagia, and/or dysphonia. Diagnosis can be delayed for months or years.1-4

Clinically a differential diagnosis with osteoid osteoma is compulsory, as this is smaller, rarely progressive and causes intense pain that is resistant to analgesics. However this is a lesion which is even more rare in the larynx-like aneurysmatic bone cyst and giant cell tumour, and therefore lesions


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Chondrosarcoma

Molecular

ing into lesions.

Figure 1  Axial slice (A) and 3D reconstruction (B) of cervical CT, showing destructuring of the thyroid ala with an excrecent tumour of predominantly extralaryngeal growth of 36 mm × 43 mm, with chondral matrix and heterogeneous ossification pattern. Surgical view of the lesion; reddish, hard, and well-delimited nodule (C).

to be ruled out are reactive heterotopic reactive ossific nodules or osteosarcoma.2

Ultra sound and radiography often fail to identify these lesions. On CT scanning, osteoblastoma manifests as a well-contained expansive lesion, of heterogeneous density, with displacement of the neighbouring soft tissue with no infiltration.1,3,5

In the surgical field, the lesion is clearly reddish because of its haemorrhagic component and granulomatous, even mimicking darker cystic areas.1,6

Histologically osteoblastoma comprises a highly vascularised mass, with dilated capillaries and significant production of osteoid substance, with well woven bone organised into cell niches on a connective-fibrous matrix—similar to a post-traumatic osteitic reaction. Histopathological typing alone is not sufficient to distinguish it from osteoid osteoma, but it does distinguish it from osteosarcoma, since osteoblastomas show mineralisation of the osteoid with large osteoblasts in a single row and little mitotic activity, oval-shaped nucleus and clearly defined margin, and mature bone accumulating on the periphery. Forms of osteosarcoma that are rarely aggressive and of doubtful diagnosis, show voluminous chondroid cells with hyperchromatic nuclei, with destructive behaviour in the cortex, but not periotial.1,2,5,6 Chondrosarcoma is characterised by the growth of calcified niches with cartilage that loses its normal architecture and infiltrates the neighbouring tissue, high rates of nuclear atypia and nucleus-to-cytoplasm ratio.7 Molecular diagnosis is not definitive, although negative TP53 gene mutation gene would support the tumour being benign.1

Because they are difficult to diagnose, osteoblastic tumours of uncertain malignant potential are classified into low-grade osteosarcomas, osteoblastoma which transform

Figure 2  Microscopic image of the nodular lesion well-delimited by a fibrous pseudocapsule, with the presence of irregular bony trabeculae associated with a highly vascularised stroma (A: panoramic H&E). These trabeculae are coated by a prominent osteoblastic rim of monomorphic osteoblast cells, and show multinucleated osteoclast-type giant cells, with areas of haemorrhage without necrosis (B: H&E 10×). Macroscopic view of the surgical piece (C).
into osteosarcoma, pseudosarcomatous osteosarcoma—an initially benign lesion with degenerative atypia—and locally aggressive non-metastasising osteoblastomas—identifying giant cells of the osteoclast type.

The diagnostic inconsistency of the histopathology makes it advisable to avoid microscopic study of the tumour using aggressive decalcifying techniques, soaking in EDTA is the appropriate choice. Information from an intraoperative sample never guarantees a diagnosis.1

Complete en bloc removal is the treatment of choice,1,2,3,4 sometimes requiring laryngectomy. If this resection is not complete and marginal persistence of the tumour is seen, the recurrence rate varies from 10% to 20%,1,2 and is also a risk factor for malignant transformation. Some authors do not rule out radiotherapy if there are surgical specimens with infiltrated edges,3,4 although the risk is known of sarcomatous degeneration over years. Intralaryngeal lesions are amenable to laser removal. However, because this tumour is so rare we cannot make recommendations based on clinical evidence.

Conflict of Interest

The authors have no conflict of interests to declare.

References