

## SHORT REPORT

## Symptomatic laryngeal nodular chondrometaplasia: a clinicopathological study

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A 41 year old man with a history of politrauma presented with a nodular mass of the left false vocal cord, associated with progressive dysphonia, dyspnoea, and dysphagia. A computed tomography scan of the neck region showed a rounded and circumscribed mass without infiltration of the surrounding tissues. Histological investigation of the nodule revealed the presence of fibroelastic cartilaginous tissue, surrounded by a thin rim of fibrous tissue, with rare hypercellular areas, occasional binucleated cells, slight hyperchromasia, and an irregular nuclear profile. Mitotic activity was absent. The patient's history of laryngeal trauma, with the subsequent progressive onset of clinical symptoms, helps to distinguish the chondrometaplastic nature of this nodule from true laryngeal cartilaginous tumours, such as chondroma and low grade chondrosarcoma.

We present the case of a 41 year old man, who had smoked 20 cigarettes a day since the age of 25, and who two years previously had been involved in a traffic accident, which resulted in politrauma and subcutaneous emphysema of the neck. The patient went into a coma for one week. He was intubated with mechanical ventilation. After extubation, the patient presented with total aphonia. Some month later, his voice reappeared but was dysphonic, with associated dyspnoea that worsened with every cold, and dysphagia for solid food. At the otorhinolaryngological exploration with a flexible fibroscope, a bulky lesion at the level of the left false vocal cord was revealed, which impeded the visualisation of the underlying true vocal cord and reduced the laryngeal respiratory space. A computed tomography scan of the neck region was performed and showed a rounded and circumscribed mass, originating from the left thyroid cartilage, pushing on the false vocal cord (fig 1). Surgery was performed by left cervical incision with exposure and removal of the lesion at the level of the thyrohyoid space. Macroscopically, no infiltration of the intralaryngeal and extralaryngeal muscles was observed.

## PATHOLOGY

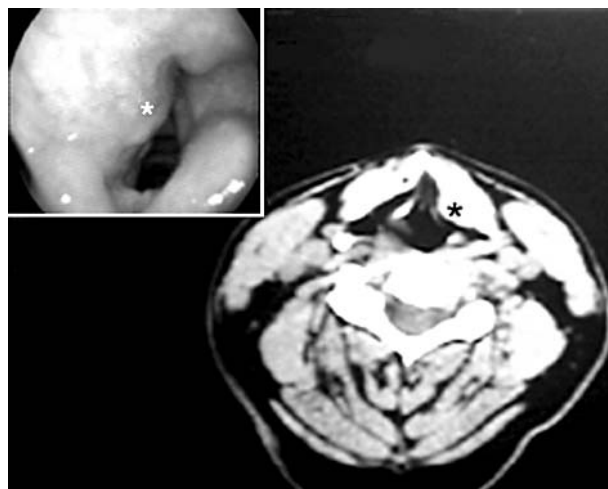
On gross examination, the lesion had a nodular appearance, with a diameter of 1.5 cm, a whitish colour, and a soft consistency. Microscopic examination of the nodule (fig 2A) revealed the presence of elastic cartilaginous tissue, without infiltrative edges, which was completely surrounded by a thin rim of fibrous tissue, that showed aspects of transition between connective tissue and cartilage (fig 2B) and irregular accumulation of alcianophylic acid mucopolysaccharides. There were no "elastophilic" collagen bundles at the centre of the nodule. At low magnification, hypercellular areas were seldom seen. At higher magnification, cells within the chondroid matrix were rarely binucleated and focally showed

a slight nuclear hyperchromasia and an irregular profile (fig 2C). Mitotic activity was absent.

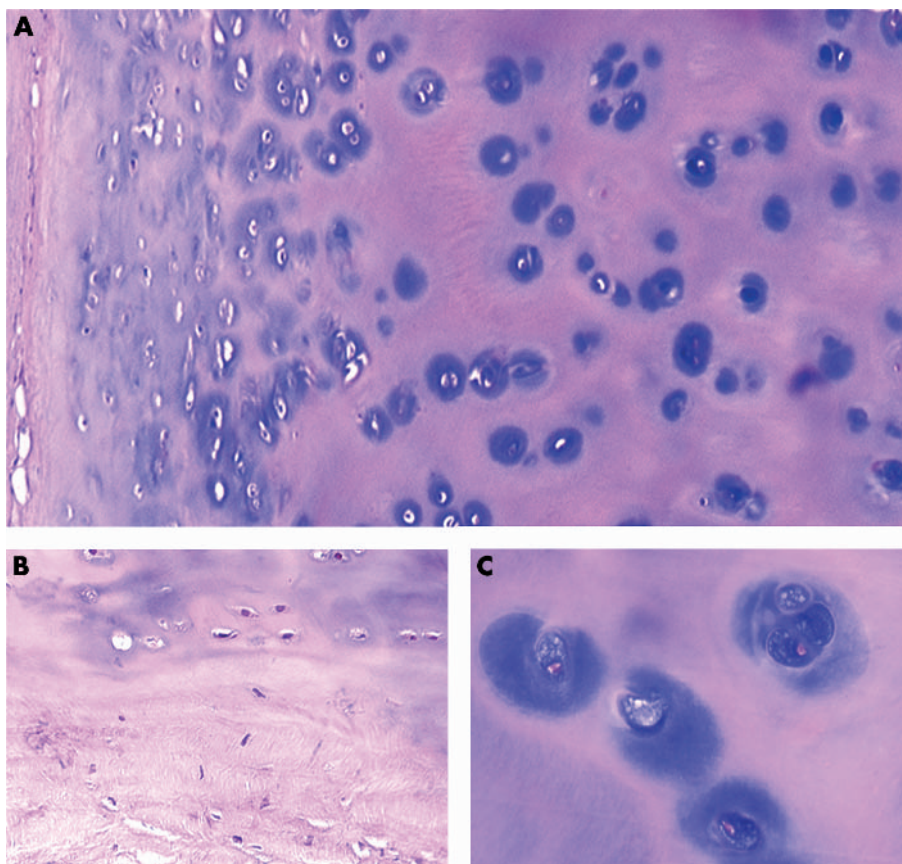
## DISCUSSION

Here, we describe a rare case of symptomatic nodular chondrometaplasia of the laryngeal soft tissues. There are only a few reports on laryngeal chondrometaplasia in the literature, although a postmortem study revealed that microscopic foci of metaplastic cartilage may be found in about 1–2% of all examined larynges.<sup>1–3</sup> This discrepancy derives from the fact that such lesions are usually small (usually less than 1 cm in diameter)<sup>1–4</sup> and asymptomatic, so that surgical treatment is rarely needed. Laryngeal chondrometaplasia shows a predilection for the posterior and midportions of the glottis, and for the ventricular bands. The recognition of nodular chondrometaplasia is important because of its occasionally troublesome differential diagnosis from true cartilaginous neoplasms of the larynx, such as chondroma and low grade chondrosarcoma. Histologically, chondrometaplasia is typically characterised by a peripheral fibroblastic rim, with a transition to mature chondrocytes of the fibroelastic cartilage towards the centre of the nodule.<sup>1–2</sup> Chondrometaplasia also shows a fibroblastic proliferation with stromal myxoid changes and the appearance of lacunae, simulating the hyaline cartilage typical of true cartilaginous tumours.<sup>3</sup> "Elastophilia" of collagen bundles in the centre of cartilaginous nodules is uncommon.<sup>3</sup>

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**Figure 1** Computed tomography image of the neck at the level of the glottic region (axial section). Insert: endoscopic photograph at the same level, showing a bulky lesion reducing the laryngeal respiratory space. Asterisks indicate the lesion.



**Figure 2** (A) Microscopic examination shows a thin fibrous rim at the periphery of the elastic cartilage nodule. At high magnification the specimen showed (B) a gradual transition of the peripheral fibroblasts to chondrocytes, and (C) binucleated cells and slight nuclear atypia.

### Take home messages

- Nodular chondrometaplasia can arise in laryngeal tissues, but very rarely becomes clinically relevant
- A patient's history of laryngeal trauma helps to differentiate nodular chondrometaplasia from true cartilaginous tumours, such as chondroma and low grade chondrosarcoma

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In our present case, in addition to other cases, the histological features of laryngeal nodular chondrometaplasia, in particular the focal increase of cellularity and the mild nuclear atypia, may simulate a chondroma or a low grade chondrosarcoma. Chondroma, although extremely rare in the larynx, shares with chondrometaplasia a homogeneous and lobular growth pattern, low cellularity, and occasional cytological atypia.<sup>5,6</sup> In addition, low grade chondrosarcoma may be characterised by a minimal increase of cellularity and nuclear atypia, so that the differential diagnosis at the microscopic level may be very difficult.<sup>6</sup> Moreover, laryngeal chondroma and low grade chondrosarcoma may cause displacement, rather than invasion of adjacent structures, making the distinction practically impossible on the basis of radiological findings only.<sup>7</sup> We believe that, in addition to the

histological features, a careful consideration of the patient's history, in this case a laryngeal trauma with subsequent progressive onset of symptoms, may help in recognising the chondrometaplastic nature of the lesion and in distinguishing it from true laryngeal cartilaginous tumours.

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