

Rheumatoid nodules of the larynx

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Abstract

A 67-year-old woman with rheumatoid arthritis was hospitalized because of dysphagia and severe nodulosis. Over a two-year period the patient had been treated with methotrexate. A computed tomography (CT) scan of the neck showed a 2 × 2 cm large tumour behind the top left lateral thyroid cartilage. A biopsy taken during direct laryngoscopy showed it was a rheumatic nodule. Treatment with colchicine reduced the patient's dysphagia. As methotrexate is used increasingly in the treatment of rheumatoid arthritis and as this particular drug causes rheumatic nodules in five to 10 per cent of the patients, it must be foreseen that the incidence of nodules in the upper airways will increase.

Key words: Arthritis, rheumatoid; Larynx; Rheumatic nodule; Deglutition disorders; Methotrexate

Introduction

Rheumatoid arthritis is seen in two to three per cent of the adult population (Woo *et al.*, 1995). Patients with rheumatoid arthritis often have arthritis in the cricoarytenoid joints causing reduced movement of the vocal folds. It is, however, rare to see rheumatic nodules in the larynx, even though 25 per cent of patients with rheumatoid arthritis have nodules (Woo *et al.*, 1995). Mostly, nodules are found subcutaneously and their localization in the larynx has only been described in a few case reports (Webb and Payne, 1972; Abadir and Forster, 1974; Bruce and Dale, 1975; Woo *et al.*, 1995).

This paper describes a case of rheumatoid arthritis with a large nodule rheumaticus in the larynx.

Case report

A 67-year-old woman with known rheumatoid arthritis was admitted to hospital due to dysphagia, impaired movement of multiple joints, severe nodulosis and poor general condition. Over the last two years, the patient had been treated with methotrexate. It was suspected that the nodulosis was caused by the methotrexate treatment and the patient's medication was therefore changed to azathioprine. The swallowing problem had increased over a period of six months. The patient was only able to eat soft food. During the last 12 months, the patient had lost 17 kg in weight.

X-ray of the stomach and the oesophagus, including video recording, only showed, as it did two years earlier, slightly decreased peristaltic movement of the oesophagus.

There was no stridor and there was no marked change in voice quality. A fibrelaryngoscopy was performed and it was found that the left false vocal fold was hypertrophic and covered the left vocal fold. A direct laryngoscopy was performed under general anesthesia. The examination was difficult because of rigidity in the patient's cervical spine and reduced ability to open the mouth. A biopsy from the left side of the larynx was inconclusive. CT scan of the neck

showed a 2 × 2 cm large homogeneous solid process behind the top lateral part of the left thyroid cartilage (Figure 1). The process extended down towards the left true vocal fold and posteriorly towards the prevertebral muscles. Direct laryngoscopy was repeated. The procedure

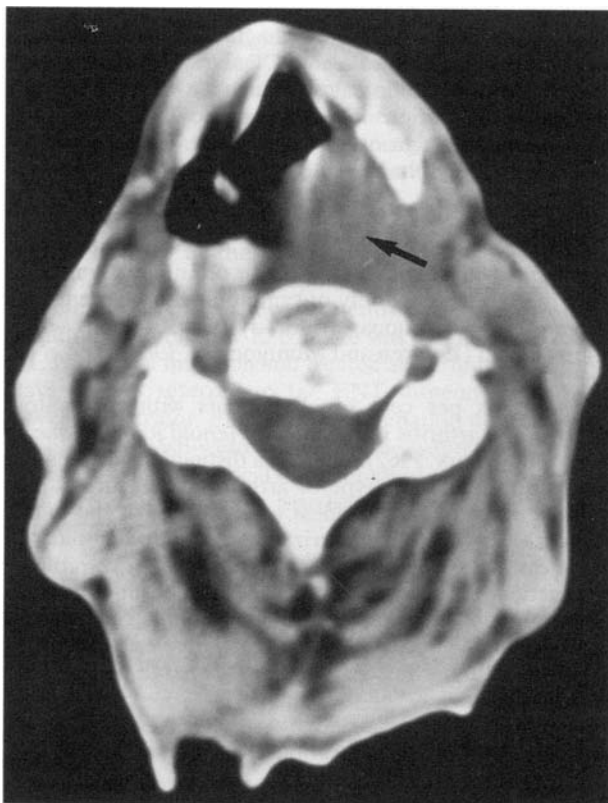


FIG. 1

Axial CT scan showing a 2 × 2 cm large process behind the top lateral part of the left thyroid cartilage.

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FIG. 2

Fibrinoid necrosis and palisading histiocytes of a rheumatoid nodule. (H & E; $\times 100$).

was still difficult, and the process could not be radically removed but some new biopsies were taken. Histological examination of these showed normal laryngeal mucous membrane with underlying stroma, consisting of connective tissue, necrosis and cells in a characteristic palisade arrangement, corresponding to a rheumatic nodule (Figure 2). A biopsy from a skin nodule gave the same histological result. A new fibrelaryngoscopy was then performed. This revealed decreased mobility of both vocal folds presumably due to chronic arthritis in the cricoarytenoid joints. The patient's dysphagia was post-operatively unchanged. However, treatment with colchicine was initiated and subsequently the patient's dysphagia decreased considerably. Three months later a new CT scan was performed. It showed that the nodule was unchanged in size compared to before the operation. The process now had a central hypodensity as a sign of necrosis. At this time the patient had only mild dysphagia.

Discussion

Patients with rheumatoid arthritis often have symptoms from the larynx. A variety of symptoms can be seen, such as hoarseness, dyspnoea, stridor, dysphagia, globus sensation and pain (Lofgren and Montgomery, 1962; Woo *et al.*, 1995).

Twenty-six per cent of all patients with rheumatoid arthritis had arthritis in the cricoarytenoid joints (Lofgren and Montgomery, 1962). There is a distinction between the acute and the chronic type of arthritis. The acute type is characterized by pain, redness and swelling of the joints. The chronic type is characterized by decreased mobility of the vocal folds. In both types there is a risk of respiratory obstruction and tracheostomy is performed in rare cases (Polisar, 1959; Phelps, 1966). Some patients can develop paralysis of the recurrent laryngeal nerve as a result of polyarteritis in the vessels supplying the nerve (Abadir and Forster, 1974).

The symptoms produced by a nodule in the larynx depend on its physical location. The patient in question had a nodule which did not cause respiratory obstruction. The history suggests that the patient's dysphagia was not only caused by the nodule but also by arthritis in the cricoarytenoid joints and may be by myositis in the pharynx and the larynx.

Methotrexate is used increasingly as a remission-inducing drug because of its effectiveness. This patient had received treatment with methotrexate over a period of two years and during this time she developed severe nodulosis. Several authors have observed a five to 10 per cent increased incidence of nodulus rheumatici in patients treated with methotrexate (Kerstens and Boerbooms, 1992). A consequence of this could be that nodules in the upper respiratory tract in patients with rheumatic arthritis will be a more frequent finding in the future.

Our patient was later successfully treated with colchicine. *In vitro* experiments and case reports seem to indicate that colchicine is effective against new rheumatic nodules (Merrill and Shen, 1996). Patients suffering from rheumatic arthritis can be extremely difficult to intubate and to examine by direct laryngoscopy. Arthritis in the temporomandibular joints can reduce the ability to open the mouth (Bridger and Jahn, 1980). Arthritis in the cervical spine can cause rigidity in the neck which may result in subluxation of the atlantoaxial joint if the neck is hyperextended (Edelist, 1964). The rima glottidis can be very narrow due to arthritis in the cricoarytenoid joints.

In the above mentioned case, it was not possible to remove the whole nodule by direct laryngoscopy. A complete removal of the nodule would probably have required an external surgical approach. So far, however, this has not been necessary as the patient's symptoms have been stabilized at an acceptable level.

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