

# Rheumatoid Arthritis – Think About Cricoarytenoiditis !!

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## Abstract

The cricoarytenoid joint is a true diarthrodial joint that can be affected by rheumatoid arthritis<sup>1</sup>. Involvement of the cricoarytenoid joint has been reported in 26-86% of patients with rheumatoid arthritis and can be a symptomatic quite often<sup>2,3</sup>.

## CASE REPORT

An 80 yr old woman with a history of rheumatoid arthritis was admitted to the Accident & Emergency department with a painful hip after a fall. X-ray of her hip revealed a displaced left sided intracapsular fracture, and a hemiarthroplasty was planned for the same evening.

She first developed rheumatoid arthritis in her early 20's, the principal joints involved being the cervical spine, wrist, hands and knees. Over the years this had been treated by anti inflammatories, disease modifying drugs, steroid injections and joint replacements. 15 years back she was referred to an ENT specialist with exertional stridor and was told that she had rheumatoid involvement of the larynx. Later she had a total knee replacement for which her trachea was intubated and she developed acute stridor on extubation. This was attributed to rheumatoid arthritis, but didn't need any active intervention. Currently she was taking diclofenac and prednisolone daily. She proceeded to theatre and her trachea was intubated with a size 8 oral endotracheal tube without any difficulty. The intraoperative period was uneventful.

Post extubation she developed stridor and needed supplementary oxygen to maintain oxygen saturations of 92%. After one hour in the recovery room her symptoms subsided and she returned to the ward. 12 hours later an anaesthetist and an ENT surgeon were called to attend to her urgently because she was in respiratory distress. On their arrival she had severe inspiratory and expiratory stridor, was unable to speak and there was marked use of accessory muscles. She was cyanosed, tachycardic and her oxygen saturations were 75%. On administering 100% oxygen her saturations came up to 90%. On indirect laryngoscopy her vocal cords were found to be in an adducted position with reduced mobility and a very narrow glottic chink. The

mucosa looked mildly oedematous around the arytenoids. Her symptoms gradually improved. She had a CT scan which showed soft tissue swelling of the cricoarytenoid joints as well as constriction of the trachea posteriorly as a result of adduction of the vocal cords. Over the following week she had several episodes of minimal stridor, especially on mild exertion. It was concluded that she had chronic rheumatoid arthritis of the cricoarytenoid joints and that intubation of the trachea through the narrowed vocal cords had caused laryngeal oedema precipitating an acute upper airway obstruction.

## DISCUSSION

Despite the high incidence of rheumatoid involvement of the larynx, its presentation as acute upper airway obstruction is fortunately an uncommon event and has seldom been reported in recent anaesthetic literature. Early pathological changes of rheumatoid arthritis in the larynx affect the synovium and can present with symptoms of pain, tenderness, dysphonia, redness and swelling of the mucosa. At this stage the disease is not intrinsically dangerous and is potentially reversible. However, with continuing involvement, fibrous ankylosis occurs, the cricoarytenoid joints become fixed and the vocal cords are adducted, reducing the glottic opening quite drastically<sup>4,5,6</sup>. In the chronically arthritic larynx there are none of the symptoms associated with acute inflammation and because the majority of patients with advanced disease are relatively inactive, they can be asymptomatic at rest. This stage of the disease is a potential hazard for the anaesthetist because intubation can cause laryngeal oedema in an already compromised airway precipitating respiratory obstruction. A difficult laryngoscopy due to temporo mandibular and/or atlanto-axial involvement will make this more likely. Most anaesthetists

routinely enquire about cervical spine and temporo mandibular problems in patients with rheumatoid arthritis pre-operatively. However, laryngeal involvement is often overlooked. As was the case with this lady, there is often a history of progressively worsening exertional dyspnoea and stridor. Thus in cases of advanced rheumatoid arthritis alternatives to endotracheal intubation like a laryngeal mask airway or a regional technique may be more appropriate <sup>7</sup>.

In patients with chronic rheumatoid arthritis who present with symptoms of dyspnoea and stridor, preoperative investigations should exclude cardiac, pulmonary as well as laryngeal pathologies. High resolution computed tomography (HRCT) is the investigation of choice in assessing cricoarytenoid involvement in rheumatoid arthritis <sup>8</sup>. Management consists of tracheostomy both for an acute obstruction and for any definitive operation <sup>4,5,9</sup>. Other techniques including a unilateral arytenoidectomy and suturing of the ipsilateral cord in abduction may give long term relief and negate the need for a permanent tracheostomy <sup>10</sup>.

Finally it should be noted that other diseases such as gout, disseminated lupus erythematosus, scleroderma, Tietze's syndrome, upper respiratory tract infections, trauma, vocal cord tumours, recurrent laryngeal nerve paralysis have also been reported to cause cricoarytenoid arthritis <sup>4,11</sup>.

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