SPONTANEOUS REPOSITION OF A DISLOCATED ARYTHENOID CARTILAGE

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SUMMARY

We report a patient suffering from arytenoid cartilage dislocation after difficult tracheal intubation and the abrupt spontaneous reposition in the course of severe vomiting 1 month after the operation. Predisposing factors for the unusual reposition are discussed. (Br. J. Anaesth. 1993; 70: 591-592)

KEY WORDS


Arytenoid dislocation is a rare event and complication of tracheal intubation [1-11]. It may cause the following changes: alteration in vocal quality (weak voice, whisper, hoarseness, aphasna) [3, 5, 8-10], diminished airway (stridor) [2, 6, 8, 11], sore throat, or painful swelling [1].

Laryngoscopy reveals an immobile vocal cord. Correct diagnosis is essential, to exclude neurogenic vocal cord paralysis, as the management of the two conditions is different. Early reposition of the dislocated arytenoid is required when dislocation has occurred.

CASE REPORT

A 60-yr-old man was scheduled for radical prostatectomy and was classified ASA II. He reported a chronic dry cough for several years, but an ENT examination 6 months earlier had not revealed any pathology except what was described as a hyper-sensitive bronchial system. In the past, he had undergone three general anaesthetics, one with intubation 21 yr previously. Difficulty with intubation was not expected, as the Mallampati classification was I [12], with mouth opening 5 cm.

Anaesthesia was induced and laryngoscopy, performed with a No. 3 MacIntosh blade, was difficult. It was classified as Cormack grade 3 [13] (epiglottis only visible), and accomplished by an experienced senior registrar at the first attempt with a 8.5-mm i.d. super-safety-tube (34 CH, Ruesch, Germany) using a stylet. The tip of the tube was easily pushed down around the stylet lying in the trachea and rotation of the tube was not required. With the exception of a bradycardia of 40 beat min⁻¹ after administration of suxamethonium and during intubation, there was no other anaesthetic or operative problem. A nasogastric tube (14-gauge) was passed without difficulty at the time of intubation. Because of hypothermia at the end of surgery, mechanical ventilation was continued for 8 h after operation. At 12 h after tracheal intubation, the trachea was extubated without difficulties, with the tube cuff deflated.

On the first day after operation the patient complained of feeling a bolus in the throat. ENT examination on the same day revealed distinct oedema of the soft palate on both sides, with unremarkable larynx and vocal cords.

Follow-up examination by another otorhinolaryngologist showed “a discreet oval-shaped insufficiency of the closure of both vocal cords,” but no signs of trauma caused by tracheal intubation. The continuing aphasis of the patient was suspected to be caused partially by his chronic obstructive bronchitis.

A third ENT consultation described paresis of the right vocal cord with normal mobility of both cricoarytenoid junctions, no haematoma and no inflammation.

Three weeks later, examination under local anaesthesia and review of the recent videoendoscopy revealed dislocation of the left arytenoid cartilage.

The previous differences in diagnosis were explained by the difficulties in laryngoscopy in this patient and his tendency to choke on examination.

Reposition of the cartilage under general anaesthesia was planned for the 26th day. Laryngoscopy revealed Cormack grade 3, confirmed by a second registrar, but repositioning could not be performed because of reduced mobility of the patient’s head. Repositioning under local anaesthesia was scheduled subsequently, but not carried out because in the meantime, the patient was admitted to a different hospital with symptoms of pancreatitis and biliary colic. At that time aphasis persisted, but after a severe bout of vomiting, his voice changed abruptly to normal.

Final examination under indirect microlaryngoscopy revealed no dislocation of the arytenoid cartilage. The patient was content and did not notice any difference in his voice compared with time before the incident. Stroboscopy of the vocal cords was normal.

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DISCUSSION

In our patient, tracheal intubation, using a stylet, was difficult and the vocal cords and arytenoid cartilages were not seen. Insertion of the nasogastric tube and tracheal extubation were performed without difficulty and tracheal extubation occurred 8 h after operation (short-term intubation). Consequently, we believed that the persisting aphony was a direct result of tracheal intubation and, after several laryngological examinations, the cause of the aphony was found to be dislocation of the left arytenoid cartilage.

Review of the literature indicates that, the left side is involved in the majority of cases of arytenoid dislocation [1, 3, 5-10]. We agree with Quick and Merwin [1] that the left arytenoid is at greater risk of the injury.

There are several possible causes of dislocation of the arytenoid. In our patient, the most likely explanations are either dislocation by pressure from the tip of the tube or the stylet [2] or trapping of the arytenoid between the stylet and the tube. A further explanation suggested by Quick and Merwin [1], although less likely in our patient, is the force exerted by the convex curvature of the distal third of the tracheal tube on the arytenoid cartilage.

To avoid trauma to the arytenoids, it might have been helpful to rotate the tube 90° anticlockwise before it approached the larynx, as proposed by Cossham [14].

Diagnosis may have been made earlier using computed tomography [8], especially in our patient, in whom direct and indirect examination of the larynx was not easy to perform and led to several misinterpretations. Oedema or haematoma of the cricoarytenoid region may also have delayed correct diagnosis [4, 7].

Arytenoid cartilage dislocation after tracheal intubation is uncommon, probably because of the wide range of passive motion allowed by the cricoarytenoid joint [1]. Habitual dislocation [15] can be excluded in this case, as our patient experienced no such event during previous tracheal anaesthesia. It is possible that chronic bronchitis with frequent coughing may cause loosening of the cricoarytenoid joint ligaments, thereby making possible dislocation of the arytenoid cartilage and its abrupt spontaneous reposition by comparatively minor forces [2].

The first case of spontaneous repositioning was reported by Rudert [7]. It occurred while his patient was coughing after accidentally aspirating a piece of an apple. Another case of spontaneous repositioning of bilateral dislocated arytenoids was reported by Chatterji, Gupta and Mishra [11]; restoration of the arytenoids to their normal position was associated with violent coughing. Here we present the third case of spontaneous repositioning of an arytenoid dislocation. The dislocation was caused by tracheal intubation and its spontaneous reposition occurred in the course of severe vomiting. The predisposing factor for this unusual reposition was probably chronic bronchitis.

REFERENCES