



Unexpected Difficulties in Intubation: Undiagnosed Subglottic Stenosis

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Dear Editor,

The incidence of subglottic stenosis (SGS) occurring after intubation is reported to be 11.38% in children (1). The duration of intubation, hypoperfusion and trauma due to endotracheal tubes with a balloon and intubation are among the risk factors of SGS, which is a significant problem for anaesthesiologists (2, 3). We aim to share our experience by reporting a case in whom SGS diagnosis was previously unknown, and we experienced difficult intubation during the radiofrequency (RF) and grommet insertion operation due to concha hypertrophy.

Our patient who was taken to the operating theatre after receiving the written informed consent from the parents was a 13-year-old, 49 kg, 163 cm tall male and ASA-I patient. His preoperative evaluation revealed that he had dust allergy and received intermittent therapy because of mild asthma and had an anamnesis of drug treatment 6 months ago. He had a history of application to the emergency service for several times because of respiratory distress. Furthermore, it was known that he underwent general anaesthesia 4 years ago because of the grommet surgery. His physical examination and laboratory tests were normal.

While the patient was monitored in the operating room, the heart rate (HR) was 92 beats min^{-1} , non-invasive blood pressure (BP) was 141/78 mmHg and the arterial oxygen saturation (SpO_2) was 96%. Following the induction with 120 mg of propofol and 0.5 mg kg^{-1} of rocuronium and the oxygen application with a mask, laryngoscopy was performed in the patient who was sedated with 2 mg of immobil. Vocal cords were visualized easily; the opening of the glottis was narrower than normal and the vocal cords were still. When intubation was attempted using the number 5.5 endotracheal tube with a balloon, it was seen that the tube was unable to be advanced further beyond the vocal cords. Thereupon, reducing the number of tubes, number 5.0 and 4.5 tubes with a balloon and subsequently, number 5.0 and 4.5 tubes without a balloon were tried. Because the number 4.5 tube without a balloon could not be advanced, the patient's trachea was wanted to assess through video laryngoscopy. However, when the ventilation became difficult and spasm developed, the process could not be continued and it was decided to awaken the patient with sugammadex. The patient who had withdrawals in the suprasternal and the chest and who had stridor and respiratory distress during awakening was taken to the intensive care unit (ICU) for follow-up and treatment. After a 1-day follow-up, he was sent to the ENT service with stable breathing and circulation. In the radiographic MRI examination that was performed on postoperative day 1, Grade I subglottic stenosis was detected and evaluated as the reason for not being able to perform intubation (Figure 1a, b).

Subglottic stenosis is known as a reduction of subglottic space width. It may be hereditary as well as it is acquired because of intubation and mechanical ventilation in 90% of the cases (4). It is known that subglottic stenosis may develop even in patients with a very short intubation time (5). SGS was defined in four degrees in reference to the Cotton–Myer classification and was modified by Monnier (6) (Grade I: laryngeal lumen stenosis up to 50%, Grade II: stenosis up to 70%, Grade III: stenosis up to 99%, Grade IV: lack of a noticeable lumen. a: stenosis remaining isolated, b: presence of associated pathologies, c: inclusion of the glottis in stenosis or d: If both exist). Surgical treatment may be required to eliminate the symptoms of Grade II and above cases and improve their quality of life.

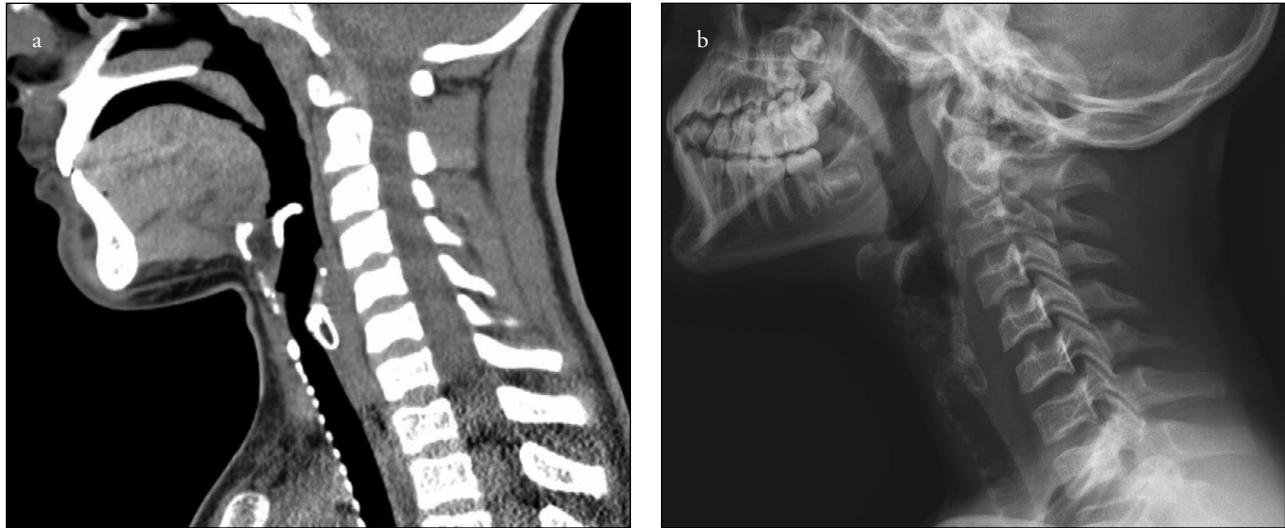


Figure 1. a, b. MR imaging and cervical spine radiographs of the patient

Subglottic stenosis may cause symptoms such as dyspnea and dysphonia that affect the patient's quality of life. The symptoms can be seen immediately after the extubation; they may also occur after many days. When the symptoms occur, as in our patient, it is generally treated with the confusion of asthma, and improvement is often observed inadequately (5). Therefore, the medical history of the patients suffering from respiratory problems such as breathing difficulty, frequent coughing and sound while breathing should be investigated in detail.

Currently, considering the increasing rates of surgery and anaesthesia, the possibility to encounter an SGS case depending on the previous intubation cannot be underestimated. As in our case, SGS should also be considered to be a reason in patients with a history of endotracheal intubation and in whom intubation difficulty was faced as a result of the failure to push the tube forward.

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