Case Study: 13 y.o boy with airway obstruction

This young fellow was carried in from the remote west of our district where at that time there were no medical services. The family had walked for a full day carrying him by bush stretcher. On presentation he was in severe respiratory distress, with gross suprasternal recession, and stridor that had become ominously soft. The patient was combative, confused, and showing signs of imminent respiratory arrest. The area over his trachea was swollen and tender. The initial working diagnosis was laryngo-tracheitis of unknown aetiology causing upper airway obstruction.

He was rushed to theatre with the intention of performing a tracheostomy. Anaesthesia was induced, the patient paralysed and a small endotracheal tube was gently inserted. Fortunately this was achieved relatively easily and the anaesthetist was very relieved to find that subsequent ventilation was fairly easy, suggesting the tube had bypassed the major obstruction. In hindsight this probably was a fairly risky anaesthetic strategy and insertion of tracheostomy under local anaesthesia may have been wiser, although the combativeness of the patient would have made this a difficult option as well.

During tracheostomy, dissection was somewhat difficult as the pre tracheal tissues where swollen and inflamed making the landmarks obscure. The trachea itself was quite soft and the whole procedure had a quite unusual "feel". The endotracheal tube was withdrawn proximally until the tip could be seen through the stoma, and then a trachostomy tube inserted, the anaesthetic circuit switched across, and then the E.T. tube withdrawn altogether. Once we were happy that everything was secure, he was awoken, the circuit removed and replaced with a filter on the tracheostomy. Spontaneous respiration being satisfactory, he was transferred to the ward.

He was commenced on broad spectrum IV antibiotics, and over the next 10 days his condition steadily improved. The proximal obstruction could be "tested" by blocking off the tracheostomy. When he was able to breathe freely, it was removed and he was discharge home.

Although the case had a very good outcome, I confess that I still had really no idea what the underlying aetiology might have been, and it remained a conundrum for me for some years. Any ideas?

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Laryngotracheal Diptheria

Diptheria can present in several forms. Severity of disease tends to depend on the extent and site of the local lesion, and the degree of absorption of the exotoxin which can cause neuropathy and potentially fatal myocarditis.(2)

Mild nasal disease may present as a unilateral bloody discharge with minimal systemic symptoms. Tonsillar disease will reveal the classic ivory white or grey-yellow pseudomembrane, which is firmly adherent to the underlying tonsil. This can spread to involve the entire pharynx. The "bull neck" appearance often accompanies. These patients tend to be at highest risk of severe exotoxin absorption.

Laryngotracheal diptheria may be primary or secondary to pharyngeal disease. Absorption of the C. diphtheriae toxin may be minimal so the major signs related to the airway obstruction caused by the build up of pseudomembrane. If pharyngeal disease is present, the diagnosis should be clear. If not, then differentials might include foreign body obstruction, viral or bacterial laryngotracheobronchitis. (2)

In this case, the clinical history excluded foreign body, and the age of the patient made significant obstruction from viral disease unlikely. The degree of swelling and tenderness of the tracheal tissues also made me feel that bacterial disease was the likely cause. Although we were never able to confirm the diagnosis, it would seem that diptheria was an explanation certainly worth considering. We met him by chance a few years later on the trail!