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Tracheostomy sinuses
Case reports of an internal and external sinus

by

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Introduction

The persistence of a tracheo-cutaneous fistula following temporary tracheostomy is due to epithelization of the tract by epithelium from either the skin or trachea. This frustrates normal healing following decannulation. Two unusual problems of tracheostome healing are described which resulted in a persistent sinus, neither of which have been previously documented.

Case Report (1)

An acquired tracheocele; An internal tracheal sinus following tracheostomy

A 21-year-old female developed a respiratory distress syndrome following a fractured femur. To maintain adequate tissue oxygenation, intermittent positive pressure ventilation (IPPV) was necessary. Initially this was *via* a nasal endotracheal tube but after five days IPPV a tracheostomy was established *via* a vertical skin incision, with midline dissection, and the trachea was entered by removal of a segment of the 4th tracheal cartilage. Post-operatively the wound became contaminated with staphlycoccus aureus. Cardio-pulmonary function improved over the succeeding days, permitting decannulation five days following tracheostomy. An orthopaedic internal fixation of the fractured femur was performed two weeks later. The patient made an excellent recovery and was discharged home five weeks following admission.

The patient was then seen in the ENT Clinic two months later complaining of a painless midline neck swelling which distended beneath the tracheostomy scar on performing the Valsalva manoeuvre. This swelling had the characteristic feeling of surgical emphysema. Xerograms were taken and show a distensible air sac (Fig. 1) at rest, and distended under positive pressure (Fig. 2).

The patient, being concerned at this phenomenon, requested treatment. The neck was therefore explored *via* a horizontal incision excising the old scar. The 'aerocele' was identified by the excrescence of respiratory mucosa from the tracheotomy into the surrounding tissues of the neck for a distance of 1 cm. The mucosa was excised, the tracheal opening formally closed and the soft tissues closed in layers. Post-operative recovery was complete and uneventful.

Comment

The pathogenesis of this hitherto undescribed 'tracheocele' was clearly the development and maintenance of a blind internal tracheal sinus which distended with air under positive pressure. The internal orifice of the sinus was noted to be mucosal lined; this prevented healing and maintained the patency of the orifice. Why this occurred or indeed why it does not occur more often is obscure. Persistence of a stoma is seen infrequently, occurring in only three of 1,928 tracheostomies reviewed by Chew and Cantrell (1972). The tracheocele may be regarded as a *forme fruste* of a 'persistent stoma'.

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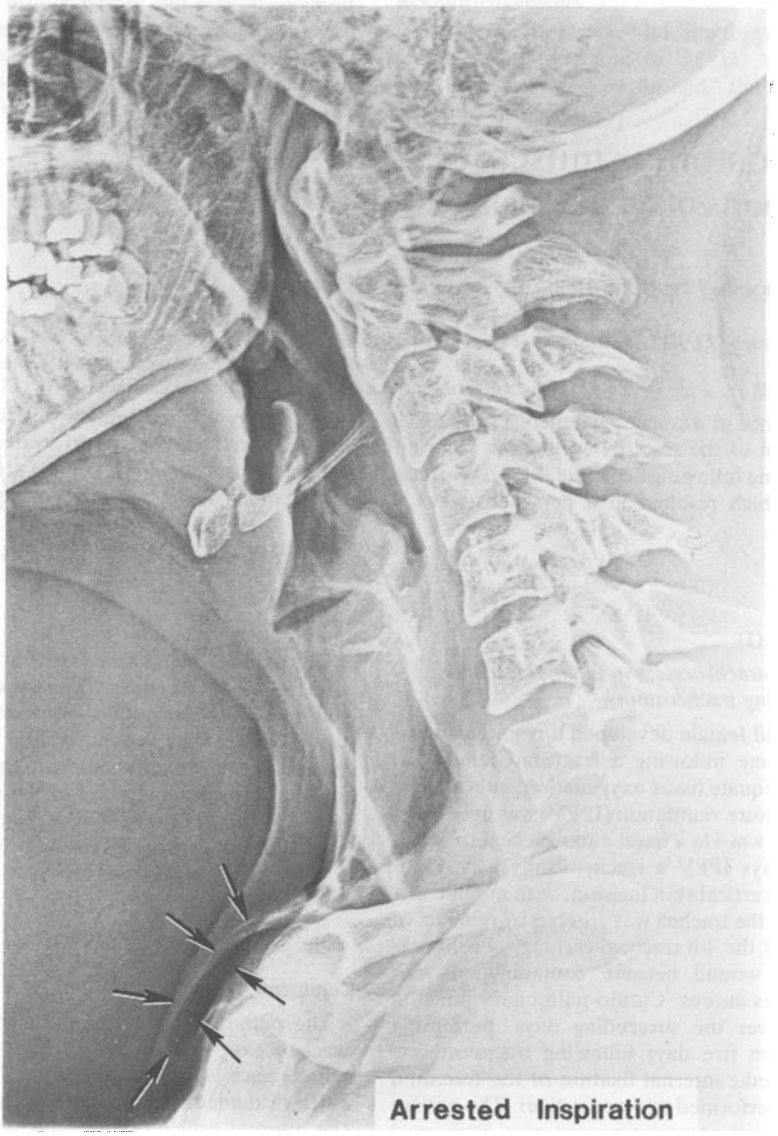


FIG. 1
Lateral neck xerogram arrested inspiration.

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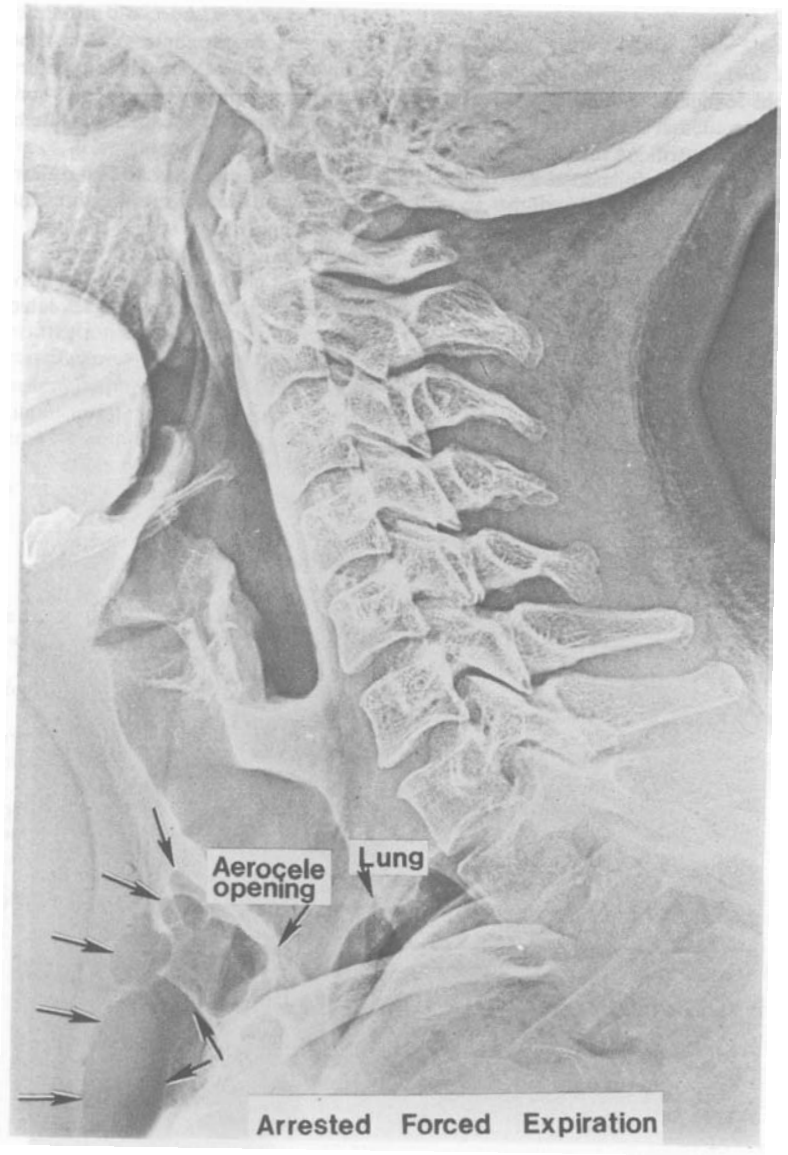


FIG. 2
Lateral neck xerogram arrested forced expiration.

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Case Report (2)

A thyroglossal duct sinus following tracheostomy

A 52-year-old female had lived on a farm in a remote rural area all her life and only recently moved to an urban centre. At the age of one year she had a tracheostomy performed at the local district hospital. She had no knowledge of the circumstances of this procedure, only that her mother told her that it had been done because she had been 'choking' and that she had only required the tube for a short period of time.

For as long as she could remember she had a discharge from the centre of the tracheostomy scar, at times purulent but never completely dry. She could not recall any episodes of surrounding cellulitis. No air ever escaped and she had never had any further airway problems.

When examined, a bead of purulent mucus could be expressed from a minute sinus in the centre of the tracheostomy scar. Indirect laryngoscopy revealed a normal larynx.

Contrast medium was injected into the sinus and a lateral neck X-ray (Fig. 3) revealed a communi-

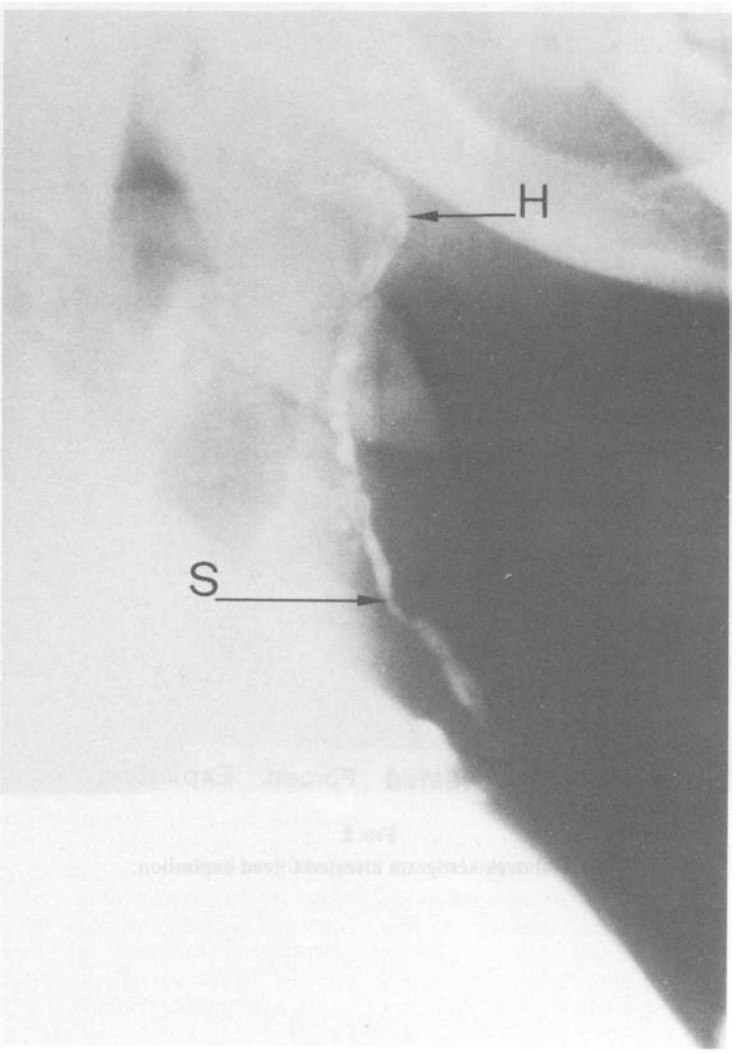


FIG. 3

Lateral neck radiograph. H = Body of hyoid bone. S = Thyroglossal duct sinus.

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cation (S) between the orifice and what appeared to be a thyroglossal tract remnant extending up to the body of the hyoid bone (H). Antibiotic therapy was instituted and, when the discharge was no longer purulent, surgical excision of the tracheostomy scar, the thyroglossal tract remnant and the body of the hyoid bone was undertaken with uneventful healing. No further discharge has occurred.

Comment

A thyroglossal duct sinus (incorrectly called fistula) follows infection and drainage onto the skin of a thyroglossal duct cyst (Bailey and Love, 1971). This may occasionally be spontaneous but usually results from inappropriate surgical incision, or even incomplete removal of the cyst. In this patient it is possible that infection associated with the thyroglossal cyst caused upper airway obstruction. Tracheostomy may therefore have not only relieved the obstruction but also drained an abscess.

Alternatively the tracheostomy may have involved a thyroglossal tract remnant purely by chance, infection being first introduced at the time of tracheostomy and perpetuated by epithelialization of the thyroglossal tract to the skin surface. This condition should be borne in mind when faced with a chronically discharging stomal sinus.

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