Inflammatory sub-glottic stenosis

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Introduction

An acute stenosing subglottic lesion may occur in children with subglottic laryngitis (pseudocroup) or may rarely follow a period of endotracheal intubation. A case is presented of acute respiratory obstruction, occurring in a 69-year-old woman, due to a localized inflammatory sub-glottic stenosis.

Case report

F.W., a 69-year-old woman, presented as an emergency in February 1973, with stridor of five days' duration. Six weeks prior to admission she had had a chest infection treated by her family doctor with complete resolution. Five days prior to admission she had suddenly noticed difficulty with her breathing and had developed an irritating, unproductive cough. Forty-eight hours prior to admission she had been started on Ampicillin 250 mg. q.d.s. by her general practitioner but, in spite of this, she developed increasing stridor, and was, therefore, referred urgently to the E.N.T. Department.

On admission, she had an inspiratory stridor but was not cyanosed. Her voice was slightly husky but there was no previous history of hoarseness. She had an irritating, non-productive cough. Clinical examination of her chest revealed no abnormality. Indirect laryngoscopy was performed and revealed a mass of tissue in the sub-glottis, apparently extending circumferentially around the sub-glottis and upper trachea. The larynx was otherwise normal, in particular the vocal cords were clean and fully mobile. General examination was otherwise negative. There were no palpably enlarged cervical lymph nodes. A chest X-ray taken on admission clearly demonstrated a stenosis in the sub-glottic region and upper trachea; the lung fields were clear.

A tentative diagnosis of sub-glottic carcinoma was made and, as the patient's airway was judged to be adequate, tomograms of the larynx and a barium swallow were ordered. The patient continued on Ampicillin 250 mg. q.d.s. Laryngeal tomography confirmed that the lesion was localized to the sub-glottic trachea: 'There is considerable narrowing in the sub-glottic region down to a calibre of about 4 mm. and over a length of approximately 3 cm.' (Fig. 1). Barium swallow was normal, apart from demonstrating a small sliding hiatus hernia.

Two days after admission the patient was examined under anaesthesia and oesophagoscopy, laryngoscopy and bronchoscopy performed. By this time the patient's airway had improved and only slight inspiratory stridor was present. Oesophagoscopy showed no abnormality. Direct laryngoscopy showed the supralarynx and vocal cords to be normal. After removal of the endo-tracheal tube, an annular stenosing lesion was visible in the sub-glottic region, extending from 0·5 cm. to 3 cm. below the vocal cords. The distal trachea and bronchial

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tree were normal. The clinical impression of sub-glottic carcinoma seemed to be confirmed. Several biopsies were taken and, as the tracheal lumen appeared to be adequate, the examination was terminated.

Surprisingly, the biopsy reports showed 'severely inflamed, partly necrotic granulation tissue with very little stratified squamous epithelium' on all three pieces of tissue.

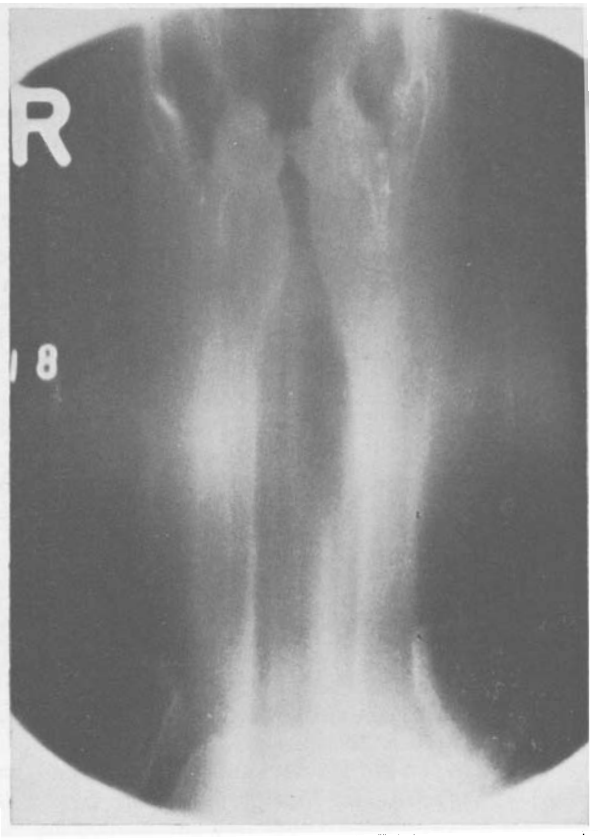


FIG. 1.
A.P. laryngeal tomogram showing subglottic stenosis.

We still felt that the patient was probably suffering from malignant disease and, therefore, a further laryngoscopy was undertaken seven days later. On this occasion, the ulcerating stenosing lesion in the sub-glottic region was found to have regressed slightly. There was less ulceration present and the degree of stenosis less marked. Further biopsies were taken from anterior and posterior tracheal wall and the trachea dilated.

On the basis that the lesion may have been inflammatory, the patient was started on Prednisone 10 mg. q.d.s. and re-started on Ampicillin 250 mg. q.d.s. On this regime there was a steady improvement and a regression in the sub-glottic lesion. The repeat biopsies were reported as 'granulation tissue densely

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infiltrated with neutorphil polymorphs and lymphoid cells'. Other investigations, including W.R. and thyroid scan, were all negative.

Three weeks after admission and after one week of steroid treatment the patient became asymptomatic and was discharged home on Prednisone 5 mg. t.d.s. When reviewed in out-patients, the lesion had receded to an area of reddened mucosa in the sub-glottis, with no stenosis. Further laryngeal tomograms confirmed the regression of the lesion (Fig. 2). Six months after the patient first presented, the appearance of the subglottis was quite normal.



FIG. 2.
A.P. laryngeal tomogram showing normal subglottis.

Discussion

Sub-glottic laryngitis, or 'pseudocroup' is well documented in children. Several series have been reported, giving the site of inflammation within the larynx and the frequency of tracheostomy (Tarkkanen and Kohonen, 1972; Leegaard, 1960; Lorkiewicz-Gizewska, 1969). These authors stress the relative infrequency of tracheostomy in this complaint (2 per cent to 4 per cent) and also report that coexistent inflammation is usually present in either the supraglottis or in the tracheo-bronchial tree (Hawkins, 1963). We have been unable to find any report of localized sub-glottic laryngitis occurring in an adult.

Gignoux, 1970, reported a case of laryngo-tracheal stenosis of fibro-inflammatory appearance and unknown aetiology. However, this case ran a chronic course over eight years with recurrent stenosis of the sub-glottis due

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to chronic inflammatory tissue. Gignoux concluded that his case was due to a type of fibrous dysplasia affecting the larynx and trachea. A prolonged period of endotracheal intubation may also be followed by an acute respiratory obstruction. Commonly there is an acute inflammatory response in the subglottis and this may cause considerable embarrassment to the airway. Tucker (1971) reports a case of respiratory obstruction following a period of only twelve hours intubation in a 14-year-old girl. However, in our case, there was no history of previous intubation or trauma to the larynx.

Interesting features in this case were the marked localization of the lesion, with an abrupt change between normal and pathological tissue, and the rapid response to steroids and antibiotics, this tending to confirm the acute inflammatory aetiology of the lesion.

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