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Gigantic obstructing laryngeal polypi

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Polypi are among the commonest lesions of the vocal cords (Holinger and Jonston, 1951). They are generally benign, both histologically and in their clinical course. They may involve one or both cords and are seen most frequently in adult males. Mechanical and chemical irritation are common etiologic factors, particularly heavy smoking and vocal abuse. Polypi begin as inflammatory edema in Reinke's space which is the subepithelial layer of the true vocal cords and is composed of loose connective tissue (Stewart, 1957). As edema progresses, the composition of the stroma changes to include tissue elements that range from scant myxoid to moderately fibrous, with variable degrees of vascularity and areas of hyaline degeneration. Polypoid degeneration can occur along the entire length of the vocal cords or as a localized pedunculated mass, and is not considered to be potentially malignant (Strong and Vaughan, 1971).

Most polypi are small sessile lesions attached to the free edges of the true vocal cords. Their usual presenting symptom is hoarseness. Polypi may reach a large size and these can present with choking spells, stridor, and dyspnea. Occasionally, when the attachment is stalk-like, symptoms may be intermittent as the polyp flips into and out of the glottis (Kloss and Petty, 1975). Although the potentially large size of laryngeal polypi is often mentioned, only a few of these cases have been reported (Shapiro, 1974). In this paper we describe two cases of gigantic laryngeal polypi, both of which presented with total obstruction of the airway.

Case 1

A sixty-year-old male noted the sudden onset of hoarseness, increasing respiratory difficulty, and one episode of minimal hemoptysis. The dyspnea progressed rapidly necessitating hospitalization one month after the onset of symptoms. There was a past history of hypertension and atrial fibrillation which was controlled by medication. There was no history of chest pain, allergy, asthma, recent surgery, or trauma. He was a heavy smoker and consumed alcohol moderately.

On admission his voice was extremely hoarse and raspy. There was moderate respiratory difficulty with an audible expiratory wheeze. There was no evidence of

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cardiac failure but there was diminished expansion of both lungs. His blood pressure was 140/86, and all laboratory studies were within normal limits. A chest X-ray showed no evidence of cardiomegaly, infiltrates, or hyperinflation. An electrocardiogram revealed atrial flutter with varying A-V Block and a rate of 100.

On the day after admission indirect laryngoscopy was performed. A large, smooth, polypoid mass was seen in the subglottic region obstructing the airway. The origin of the lesion could not be ascertained by indirect laryngoscopy. Polytomography confirmed the presence of a $2{\cdot}5 \times 1{\cdot}5$ cm. oval polypoid mass in the immediate subglottic area which seemed to be attached to the right vocal cord (Fig. 1).

His respiratory distress increased over the next two days but was immediately relieved by a tracheotomy under local anesthesia. Two days later direct laryngoscopy and biopsy was performed under general anesthesia. The histologic picture of the specimen was consistent with a benign laryngeal polyp. The size of the lesion, however, raised some uncertainty as to whether or not more sinister pathology might be present in the deeper structures. A decision was made to remove the mass by thyrotomy.

A midline skin incision was made from the hyoid bone to the cricoid cartilage and was carried down to the thyroid cartilage. The thyroid cartilage was split in

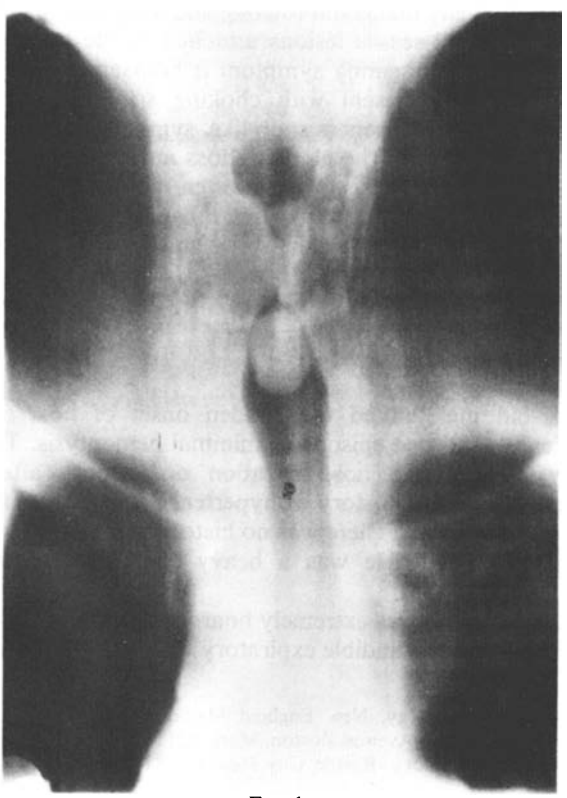


FIG. 1
A-P tomogram of the larynx demonstrating a large smooth pedunculated subglottic lesion.

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the midline and the ala retracted laterally. This exposed a smooth-surfaced ovoid mass in the immediate subglottic area (Fig. 2). It was attached by a stalk-like base to the undersurface of the anterior commissure and the anterior one-third of the right vocal cord. After resecting the base, the mass was easily delivered through the thyrotomy. Hemostasis was achieved by electrocautery. The remainder of the larynx and upper trachea appeared normal. The thyroid alae were reapproximated and the skin incision was closed.

The patient tolerated the procedure well with an uneventful post-operative course. He was decannulated on the fifth post-operative day and discharged from the hospital on the seventh post-operative day. He has remained without recurrence after five years.

Pathology

Grossly, the mass was a rubbery, pink, glistening, moderately vascular polyp measuring 2·8×1·7×1·2 cm. Histologically, the surface was covered by benign squamous epithelium. The stroma was a loose myxomatous tissue in which there was moderate fibroblastic proliferation and sinusoidal vascular spaces. There was evidence of chronic inflammation characterized by many plasma cells and



FIG. 2
Intra-operative photograph of the mass after thyrotomy. The surface is smooth and not ulcerated. The metal hooks are retracting the cut surface of the thyroid cartilage.

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eosinophils. There was no evidence of abnormal mitotic activity. The histology was consistent with a benign polyp (Fig. 3).

Case 2

A sixty-year-old male sustained a head injury in a fall. On admission there was a right hemiplegia and evidence of increased intracranial pressure. A CT scan demonstrated a left frontal lobe hematoma and contusion with intraventricular

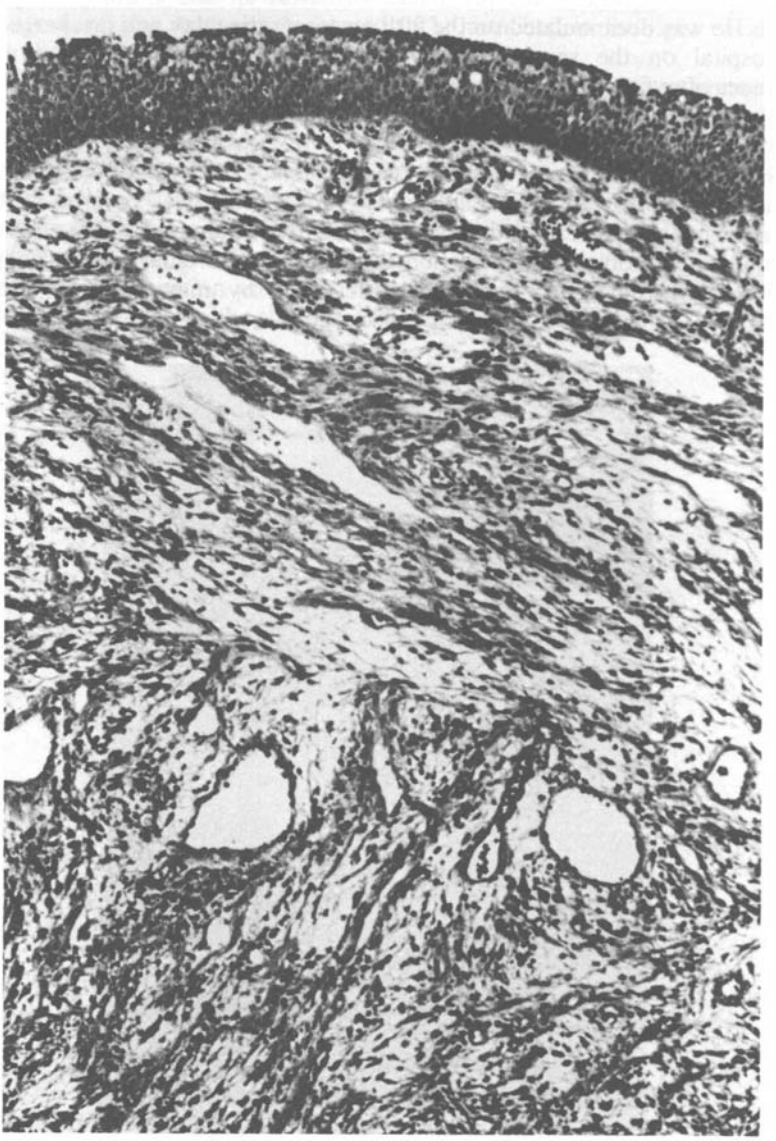


FIG. 3
Photomicrograph showing the histology of the excised laryngeal polyp. Squamous epithelium covers the surface. There is a loose myxoid stoma (×128).

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hemorrhage. He required emergency oro-tracheal intubation with a #8 tube. A left frontal craniotomy revealed a large subdural hematoma which was evacuated and a partial frontal lobectomy was performed. Post-operatively, continued respiratory failure required prolonged intubation with mechanical assistance. One week after admission a tracheotomy was performed with insertion of a #8 cuffed silastic tube. During the ensuing three weeks two more neurosurgical procedures were performed for evacuation of hematoma, and throughout this time he was maintained on mechanical ventilation via the tracheotomy. His pulmonary status then gradually improved and he was weaned from mechanical ventilation in the fourth week. He was transferred to a chronic care facility where his neurological status improved. Three months later he was readmitted for decannulation. On admission he was alert but dysphasic. There was spastic paralysis of all limbs but all cranial nerves functioned normally and symmetrically. A #5 metal tracheotomy tube was in place but he was unable to breathe when the tube was plugged. With direct laryngoscopy, a large pedunculated, lobulated, polypoid mass was found in the subglottic space with nearly complete obstruction of the lumen. It was attached anteriorly to the undersurface of the left true cord and was easily removed with a snare (Fig. 4). There were no post-operative complications. He was discharged with a #6 fenestrated tracheotomy tube in place. Six weeks later he was readmitted because of increasing respiratory obstruction. Direct laryngoscopy was repeated and a large obstructing mass of granulation tissue was removed from the subglottic area. He was again discharged with a #6 fenestrated metal tracheotomy tube in place. Six months later he could breathe easily with the tracheotomy tube plugged.

Pathology

The first gross specimen consisted of two tan-white, soft, smooth polypoid masses with aggregate dimensions of 3×1·7×0·4 cm. Histologically the lesion was covered with benign squamous epithelium. There was a loose vascular stroma

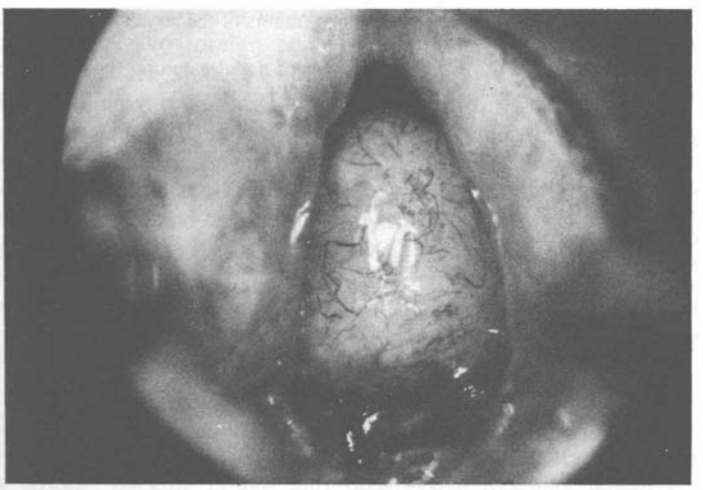


FIG. 4
Obstructing laryngeal polyp as seen through the operating microscope at 10×.

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with evidence of acute and chronic inflammation and mild fibrosis. There was no evidence of malignancy.

The specimen from the second laryngoscopy consisted of multiple fragments of a soft, red, pink, and tan tissue with aggregate dimensions of 1·5×1·5×0·5 cm. It was histologically identical to the first specimen except for an increased acute inflammatory reaction.

Discussion

Two cases of gigantic laryngeal polypi are presented, the atypical size and critical location of which posed significant problems in diagnosis and management. Laryngeal polypi often have a typical gross appearance but one should not be lulled into a false sense of security with these lesions. It must be remembered that, although laryngeal polypi do not show malignant degeneration histologically, malignant disease may present with a gross appearance indistinguishable from or concomitant with polypoid changes (Lane, 1957; Dockerty *et al.*, 1968). In addition, the cases presented here demonstrate the potential of a benign laryngeal polyp to attain a dangerously large size. Therefore, we concur with the current practice of surgical ablation or at least biopsy of polypoid lesions of the larynx (Arnold, 1973).

REFERENCES

ARNOLD, G. E. (1973) Disorders of laryngeal function. Chapter 36. pp. 634. In *Otolaryngology* Ed. Paparella, M. M., and Shumrich, D. A. W. B. Saunders, Philadelphia.

DOCKERTY, M. B., PARKHILL, E. M., DAHLIN, D. C., WODNER, L. B., SOULE, E. H., and HARRISON, E. G. (1968) Tumours of the oral cavity and pharynx. Armed Forces Institute of Pathology, Atlas of Tumour Pathology, Section IV–Fascicle 10b, 170–171.

HOLINGER, P. H. and JONSTON, K. C. (1951) Benign tumors of the larynx. *Annals of Otology, Rhinology and Laryngology*, **60,** 496–509.

KLOSS, J. and PETTY, C. (1975) Obstruction of endotracheal intubation by a mobile pedunculated polyp. *Anesthesiology*, **43,** 380.

LANE, N. (1957) Pseudosarcoma (polypoid sarcoma-like masses) associated with squamous cell carcinoma of the mouth, fauces, and larynx. Report of 10 cases. *Cancer*, **10,** 19–41.

SHAPIRO, A. L. (1974) Giant polyp of the laryngopharynx. *Voprosy onkologii*, **20,** 25–31.

STEWART, J. P. (1957) The histopathology of benign tumors of the larynx. *Journal of Laryngology and Otology*, **71,** 718–729.

STRONG, M. S. and VAUGHAN, C. W. (1971) Vocal cord nodules and polyps—The role of surgical treatment. *The Laryngoscope*, **81,** 91–92.

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