The Journal of Laryngology and Otology
May 1996, Vol. **110**, pp. 474–477

Benign fibrous histiocytoma of the larynx: presentation of a case and review of the literature

C. Van Laer, M.D.*, E. Hamans, M.D.*, I. Neetens, M.D.†, E. Van Marck, M.D., Ph.D.†,
A. Van Oosterom, M.D., Ph.D.‡, P. Van de Heyning, M.D., Ph.D.*

Abstract
A case of a benign histiocytoma of the larynx in a 39-year-old man is presented. Laryngeal fibrous histiocytoma is extremely rare. Its pathology is described including arguments for benignity. The literature is reviewed and management is discussed.

Key words: Laryngeal neoplasms; Histiocytoma, benign

Introduction

Fibrous histiocytoma of the larynx is extremely rare. It is a tumour of mesenchymal origin and consists mainly of cells phenotypically resembling myofibroblasts and histiocytes. The term fibrous histiocytoma was introduced by Kaufmann and Stout (1961).

A recent case of fibrous histiocytoma in our department posed a dilemma concerning the diagnosis and treatment of this tumour. This case report describes the histopathological findings in our patient who showed a benign form of fibrous histiocytoma of the inflammatory type.

A review of the literature revealed 26 cases of malignant fibrous histiocytoma (MFH) of the larynx (Table I) but only three authors describe a benign form of histiocytoma (Table II). A fourth case of benign fibrous histiocytoma is presented.

Case report

A 39-year-old man was admitted to our ENT department in December 1991 with a one-year history of coughing and pain in the throat. Clinical examination and chest X-ray showed no abnormalities. The patient was in good health and neither smoked nor drank alcohol.

Indirect laryngoscopy showed a solid, pediculated tumour of 1.0 cm situated at the base of the left arytenoid. Mobility of the vocal cords was normal. Palpation of the neck revealed no pathological lymph nodes. A CT scan of the neck was performed without administration of intravenous contrast. At the glottic level a tumour is clearly visible (Figure 1).

Direct laryngoscopy under high-frequency pre-glottic jet ventilation and an excision of the lesion was performed. The base of the polypoid mass was coagulated.

The histopathological diagnosis was benign fibrous histiocytoma. Because the biological behaviour of this tumour is unpredictable, an extensive blood examination, bone marrow puncture, CT scan of the chest and abdomen, ultrasound and isotope scanning of the liver and spleen were performed. No abnormalities were found. After a follow-up of four years there is no local recurrence and the patient is well.

Pathology

Seven formalin-fixed fragments were submitted measuring up to 1.2 cm in diameter.

Some of the mucosal fragments are covered with stratified squamous non-keratinized epithelium. Underneath the epithelium there is a non-encapsulated proliferation of mainly large spindle cells. These cells are arranged in bundles which show focally a storiform growth pattern (Figure 2). Many of the spindle cells are larger, polygonal and show pleiomorphism. These cells have an oval to rounded enlarged nucleus with dense chromatin and a thickened nuclear membrane. Many nuclei show one or more large nucleoli. There is no severe atypia.

Scattered between these cells there are multinucleated giant cells. There are large groups of plasma cells and some foci of foamy macrophages intermingled with iron laden macrophages (Figure 3). There are areas of necrosis with peripheral cholesterol cleft histiocytes. There is one mitotic figure per 10 HPF without atypical mitoses.

A reticulin stain (Gordon-Sweets) shows a diffuse meshwork of thin reticulin fibres. Interstitially there are large bundles of dense collagenous connective tissue.

Spindle cells, large pleomorphic cells and giant cells are immunoreactive for α-1-antichymotripsin and vimentin. There is no tumour immunoreactivity for desmin, keratin or S 100.

The final histological diagnosis was an inflammatory benign fibrous histiocytoma of the larynx.

Discussion

Fibrous histiocytoma is a neoplasm of histiocytic origin. The histiocyte is believed to be a facultative fibroblast that can differentiate into both a histiocyte and a fibroblast. This accounts for the dual population of histiocytic and fibrous elements commonly seen in this tumour (Fu *et al.*,

From the Departments of Otolaryngology, Head and Neck Surgery*, Pathology† and Oncology‡, University Hospital Antwerp (UIA), Antwerp, Belgium.
Accepted for publication: 27 January 1996.

TABLE I

REPORTED CASES OF MALIGNANT FIBROUS HISTIOCYTOMA (MFH) IN THE LITERATURE

No.	Author	Age	Sex	Clinical features	Treatment	Follow-up	Smoke Drink	Location	Metastasis
1	Hall-Jones (1972)	26	M	Lump in neck dysphagia	Total laryngectomy	ANED 10 years	–		—
2	Rolander *et al.* (1972)	56	M	Pain on swallowing voice quality change	Supraglottic laryngectomy radical neck dissection	DOD 44 months	S	Right aryepiglottic ligament	—
3	Coyas *et al.* (1974)	67	M	Acute dyspnoea	2x tumour excision, chordectomy, 74 Gy	ANED 8 years	–	Right vocal fold	—
4	Canalis *et al.* (1975)	53	M	Shortness of breath hoarseness	Piecemeal excision Cordectomy Total laryngectomy	DOD 10 months	S	Right vocal fold	+
5	Ribari *et al.* (1975)	35	M	Dyspnoea hoarseness	Tumour excision, 60 Gy	ANED 2 years	–		—
6	Ferlito (1976)	46	M	Hoarseness	Total laryngectomy Radio-chemotherapy	DOD 13 months	S	Left false vocal fold	—
7	Johnson and Poushter (1977)	67	M	Hoarseness dyspnoea	Tumour excision Total laryngectomy	ANED 5 years	–	Subglottic right posterior	—
8	Ferlito (1978)	58	M	Dyspnoea	Tumour excision Total laryngectomy Radio-chemotherapy	DOD 19 months	S	Subglottic anterior	+
9	Ferlito *et al.* (1979)	68	M	Dysphonia dyspnoea	Total laryngectomy	ANED 5 years	–	Left aryepiglottic fold	—
10	Keenan *et al.* (1979)	22	F	Haemoptysis sore throat	Segmental cricotracheal resection	ANED 8 years	–	Subglottic right anterior	—
11	Ogura *et al.* (1980)	28	M	Haemoptysis globus feeling	Cricotracheal resection	ANED 3 years	–	Subglottic right	—
12	Neblett and Coller (1981)	22	F	Hoarseness odynophagia	Partial laryngectomy	ANED 4 years	–	Right pyriform sinus	—
13	Ferlito *et al.* (1983)	67	M	Hoarseness dyspnoea	Total laryngectomy radiotherapy	DOD 23 months	S	Right vocal fold	+
14	Ferlito *et al.* (1983)	51	M	Hoarseness	Total laryngectomy	ANED 8 months	S	Anterior commisure	—
15	Ferlito *et al.* (1983)	63	M	Hoarseness dysphagia	Total laryngo-hypo-pharyngo-oesophagectomy	ANED 8 months	S/D	Right hemilarynx	—
16	Ferlito *et al.* (1983)	8	F					Subglottic	
17	Ramadass *et al.* (1984)	45	M		Total laryngectomy			Right vocal fold	—
18	Volmer (1985)	70	M	Hoarseness	Tumour excision, 60 Gy	ANED 6 years	–	Left vocal fold	—
19	Volmer (1985)	38	M	Hoarseness	Right cordectomy	ANED 4 months	–	Right vocal cord	—
20	Godoy *et al.* (1986)	26	F	Dyspnoea	Total laryngectomy Tracheal resection	ANED 6 months	–	Subglottic right	—
21	Wetmore (1987)	6	F	Hoarseness dyspnoea	Laser excision			Subglottic	—
22	Barnes and Kanbour (1988)	68	M	Hoarseness dyspnoea	Total laryngectomy	DOD 5 months		Right vocal fold	—
23	Majumder *et al.* (1989)	45	M	Dysphagia dyspnoea	Total laryngectomy, 60 Gy	ANED 1 year	–	Right aryepiglottic fold	—
24	Saha *et al.* (1989)	58	M	Hoarseness	Radiotherapy 40 Gy	DOD 5 months	–	Epiglottic	+
25	Bernaldez *et al.* (1991)	54	M	Hoarseness	Total laryngectomy	ANED 15 months	S/D	Right vocal fold	—
26	Vargas *et al.* (1992)	77	M	Dysphonia	Total laryngectomy	DOC 6 months	S	Right vocal fold	—

ANED: alive, no evidence of disease; DOC: dead of other cause.; DOD: dead of disease.

TABLE II

REPORTED CASES OF BENIGN FIBROUS HISTIOCYTOMA IN THE LITERATURE

No.	Author	Age	Sex	Clinical features	Treatment	Follow-up	Smoke Drink	Location	Metastasis
1	Jones *et al.* (1984)	13	F	Hoarseness	Tumour excision	ANED 9 years	–	Anterior commissure	—
2	Jordan *et al.* (1989)	54	F	Hoarseness	Tumour excision Total laryngectomy	ANED 8 years	–	Right vocal fold	—
3	Hamoir *et al.* (1993)	24	F	Dyspnoea	Laser excision	ANED 15 months	–	Subglottic	—
4	Present study	39	M	Coughing sore throat	Tumour excision	ANED 38 months	–	Left arytenoid	—

ANED: alive, no evidence of disease.

https://doi.org/10.1017/S0022215100134024 Published online by Cambridge University Press

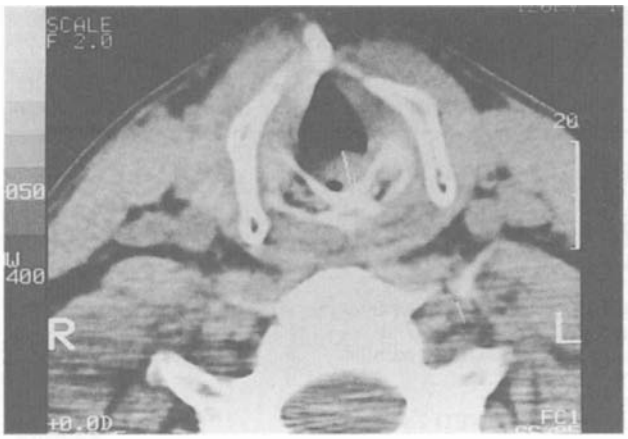

FIG. 1
CT-scan of the larynx shows a tumour at the glottic level.

1975). Other authors state that the histiocyte originates from an undifferentiated mesenchymal stem cell (Ferlito, 1978; Ferlito *et al.*, 1979).

Whereas malignant fibrous histiocytoma is widely described in publications relating to the larynx, there is relatively little published information on benign lesions.

Histological features play a disappointingly small role in predicting the biological behaviour of these neoplasms. The presence of certain atypical histological features including necrosis, marked cellularity and mitotic activity does not correlate well with clinical recurrence. The diagnosis of malignancy must frequently be made on clinical grounds. The fact that the tumour has not recurred after four years follow-up is consistent with the benign histological features.

Ferlito *et al.* (1983) state that diagnosis on biopsy can be difficult. Benign differential diagnoses include neurofibroma, leiomyoma: the distinction is facilitated by the use of immunohistology.

The most important diagnostic distinction is the separation of benign from malignant fibrous histiocytoma, which can be very difficult in incisional biopsy specimens. (Ferlito, 1983). In MFH there are numerous typical and atypical mitotic figures, often with prominent areas of haemorrhage and necrosis. The treatment of MFH is not standardized but usually the treatment of choice is surgery. A positive surgical margin is the single most important factor leading to local recurrence (Blitzer *et al.*, 1977).

The resection margins of our specimen could not be evaluated because the tumour was fragmented. Clinically

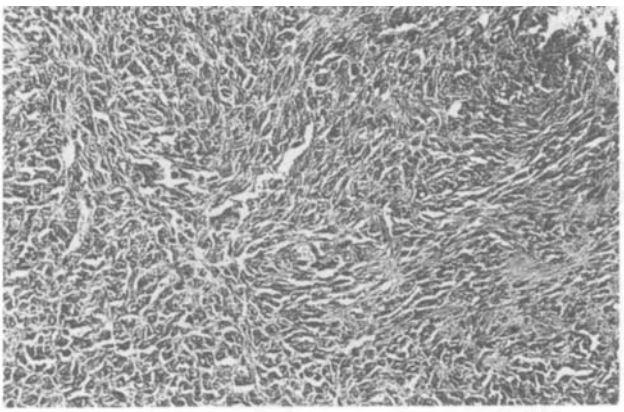

FIG. 3
Plasma cells and foci of foamy macrophages. (Trichrome Masson stain; ×250).

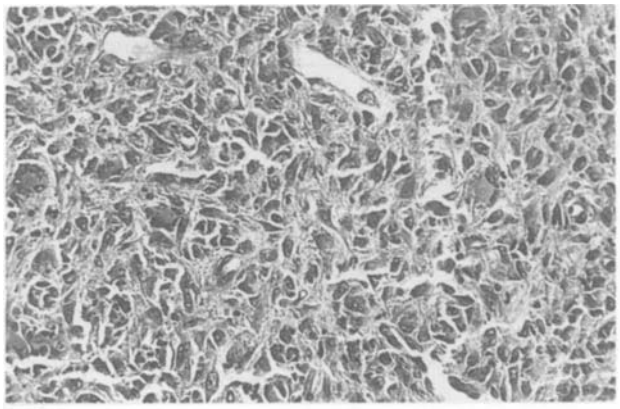

FIG. 2
Storiform growth pattern of fibrous histiocytoma. (Trichrome Masson stain; ×150).

the resection was complete. The fact that the patient is alive and free of disease 40 months after diagnosis supports the opinion of benign neoplasm.

Jones *et al.* (1984), Jordan *et al.* (1989) and Hamoir *et al.* (1993) described benign fibrous histiocytomas. In the case of Jones' tumour, excision was performed and the patient is alive and free of disease nine years after diagnosis.

The case of Jordan was treated initially with tumour excision and seven years later with a total laryngectomy because of local recurrence three times in between. The patient is alive and free of disease eight years after diagnosis. Because of the frequent local recurrence of this lesion the benign character of this case can be questioned.

The case of Hamoir was treated with tumour excision and the patient is alive and free of disease 15 months after diagnosis.

We present a fourth case of a benign fibrous histiocytoma in the larynx. Tumour excision was performed and the patient is alive and free of disease four years after diagnosis.

References

Barnes, L., Kanbour, A. (1988) Malignant fibrous histiocytoma of the head and neck. *Archives of Otolaryngology, Head and Neck Surgery* **114:** 1149–1156.

Bernaldez, R., Nistal, M., Caiser, C., Gavilan, J. (1991) Malignant fibrous histiocytoma of the larynx. *Journal of Laryngology and Otology* **105:** 130–133.

Blitzer, A., Lawson, W., Biller, H. (1977) Malignant fibrous histiocytoma of the head and neck. *Laryngoscope* **87:** 1479–1499.

Canalis, R., Green, M., Konraad, H., Hirose, F., Cooper, S. (1975) Malignant fibrous xanthoma (xanthofibrosarcoma) of the larynx. *Archives of Otolaryngology* **101:** 135–137.

Coyas, A., Anastassiades, O., Kyriakos, I. (1974) Malignant giant cell tumour of the larynx. *Journal of Laryngology and Otology* **88:** 799–803.

Ferlito, A. (1976) Simultaneous malignant pleomorphic fibrous histiocytoma and squamous cell carcinoma "in situ" of the larynx. *Acta Otorhinolaryngologica Belgica* **397:** 390–397.

Ferlito, A. (1978) Histiocytic tumors of the larynx. *Cancer* **42:** 611–622.

Ferlito, A., Nicolai, P., Recher, G., Narne, S. (1983) Primary laryngeal malignant fibrous histiocytoma: review of the literature and report of seven cases. *Laryngoscope* **93:** 1351–1358.

Ferlito, A., Recher, G., Polidoro, F., Rossi, M. (1979) Malignant pleomorphic fibrous histiocytoma of the larynx. *Journal of Laryngology and Otology* **93:** 1021–1029.

Fu, Y., Gabbiani, G., Kayr, G., Lattes, R. (1975) Malignant soft tissue tumors of probable histiocytic origin (malignant

https://doi.org/10.1017/S0022215100134024 Published online by Cambridge University Press

fibrous histiocytomas): general considerations and electron microscopic and tissue culture studies. *Cancer* **35:** 176–198.
Godoy, J., Jacobs, J., Crissman, J. (1986) Malignant fibrous histiocytoma of the larynx. *Journal of Surgical Oncology* **31:** 62–65.
Hall-Jones, J. (1972) Giant cell tumour of the larynx. *Journal of Laryngology and Otology* **86:** 371–381.
Hamoir, M., Eloy, J., Laka, A., Persoons, M., Van Boven, M., Pendeville, P. (1993) Histiocytome fibreux du larynx: rapport d'un cas. *Acta Otorhinolaryngologica Belgica* **47:** 43–49.
Johnson, J., Poushter, D. (1977) Fibrous histiocytoma of the subglottic larynx. *Annals of Otology, Rhinology and Laryngology* **86:** 243–246.
Jones, S., Myers, E., Barnes, L. (1984) Benign neoplasms of the larynx. *Otolaryngologic Clincs of North America* **17:** 151–178.
Jordan, M., Soames, F., Path, M. (1989) Fibrous histiocytoma of the larynx. *Journal of Laryngology and Otology* **103:** 216–218.
Kauffman, S., Stout, A. (1961) Histiocytic tumors (fibrous xanthoma and histiocytoma) in children. *Cancer* **14:** 469–482.
Keenan, J., Snyder, G., Toomey, J. (1979) Malignant fibrous histiocytoma of the larynx. *Otolaryngology – Head and Neck Surgery* **87:** 599–603.
Majumder, N., Sharma, H., Srinivasan, V. (1989) Malignant fibrous histiocytoma of the larynx. *Journal of Laryngology and Otology* **103:** 219–221.
Neblett, L., Coller, F. (1981) Malignant fibrous histiocytoma of the larynx. *American Journal of Otolaryngology* **2:** 163–166.
Ogura, J., Toomey, J., Setzen, M., Sobol, S. (1980) Malignant fibrous histiocytoma of the head and neck. *Laryngoscope* **90:** 1429–1440.
Ramadass, T., Balasubramaniam, V., Annamalai, L. (1984) Malignant pleomorphic fibrous histiocytoma of the larynx. *Journal of Laryngology and Otology* **98:** 93–96.
Ribari, O., Elemer, G., Balint, A. (1975) Laryngeal giant cell tumour. *Journal of Laryngology and Otology* **89:** 857–861.
Rolander, T., Kim, O., Shumrick, D. (1972) Fibrous xanthoma of the larynx. *Archives of Otolaryngology* **96:** 168–170.
Saaha, A., Mukherjee, D., Chatterjee,. D., Mukherjee, A., Mondal, A. (1989) Malignant fibrous histiocytoma of the larynx. *Journal of the Indian Medical Association* **87:** 73–74.
Vargas, J., Nieves, F., Sanches, M., Ferreiro, M., Rabade, P., Rodriguez, J. (1992) Histiocitoma fibrosa maligno de laringe. *Anales ORL Iberias America* **14:** 105–112.
Volmer, J. (1985) Malignes fibröses Histiozytom des Larynx. *Laryngologie Rhinologie Otologie* **64:** 579–581.
Wetmore, R. (1987) Fibrous histiocytoma of the larynx in a child. *Clinical Pediatrics* **26:** 200–202.

Address for correspondence:
C. Van Laer,
University Hospital Antwerp,
Wilrijkstraat 10,
2650 Edegem,
Belgium.

Fax: 32/3/8250536