Angeiomata of the Larynx.[1]

By Irwin Moore, M.B.

(ABSTRACT.)

A study of all the cases—seventy-one in number—recorded in literature, with special reference to the question of hæmorrhage, and the treatment of these tumours.

Illustrated on the epidiascope by drawings of the larynx in twelve of the recorded cases, showing the varying positions and appearance of these tumours.

Statistics of Morell Mackenzie, Fauvel, Heinz, Norris Wolfenden, Chiari, Jurasz, Schmidt, Schroetter, Lennox Browne, Wyatt Wingrave, Phillips and Ruh, Emil Mayer, from 1862 to 1916, together with extra cases (some overlooked by these authors) recorded up to June, 1920.

Classification.

(1) Hæmangeioma simplex, or local telangiectasis.

(2) Hæmangeioma cavernosum—the most common variety—with a roughened surface, and frequently pedunculated.

(3) Hæmangeioma diffusum or telangiectasis diffusa.

(4) Lymphangeioma.

(5) Mixed or atypical cases—e.g., angeiomatous papillomata, angeiomyxomata, angeiofibroma.

The *ætiology* is obsecure. Some authorities consider that these growths are due to previous inflammatory conditions of the mucous membrane, and the history of catarrh of the larynx in nearly every case would appear to support this view. They are said to occur more frequently in those who abuse their voice, and some observers consider that there is a relationship between nasal obstruction and their development. On the other hand there appears to be evidence that they are congenital in origin and at a later period suddenly develop and assume rapid growth. Lymphangeiomata are undoubtedly congenital.

[1] This paper, *in extenso*, together with twelve illustrations, will be published in the *Journal of Laryngology, Rhinology, and Otology.*

Appearance.—They may be single or multiple, but are generally unilateral and single and vary in size from a lentil seed upwards to that of a walnut. They are seldom pedunculated and generally appear as raised plaques. They are generally of soft consistence; the hæmangeiomata being of a dark bluish-grey or purplish colour, of a racemose or blackberry-like character.

Age and Sex.—They may occur at any age but more frequently during the middle period of life.

Site.—These neoplasms may be found in any part of the larynx. The opinion expressed, from the earlier cases recorded, that they are generally situated near to the anterior commissure and usually on the right vocal cord is not confirmed by later records, which show that they are much more generally distributed, for amongst sixty-four cases in which the site of the growth was definitely recorded, thirty-three were situated on the vocal cords, thirteen on the left, eleven on the right; the position of nine was not stated, and only ten were close to the anterior commissure. Of the remaining thirty-one cases, four were on the ventricular bands; four originated from the ventricle of Morgagni; two were on the epiglottis; four on the aryepiglottic folds; two in the pyriform fossa; six on the arytænoid or in the inter-arytænoid region; and three were subglottic; six were of a diffuse character (in five cases partly originating from the vocal cord).

DIAGNOSIS.

They may be recognized by a history of blood-stained sputum, or unaccountable hæmorrhage which relieves for a time any hoarseness present; by their colour and soft consistency, but a considerable number have not been diagnosed until after removal and microscopical examination. Their clinical recognition is important since these growths have been frequently confused with malignant disease, tuberculosis, syphilis and cysts.

CONCLUSIONS.

Question of Hæmorrhage.

(*a*) *In Unoperated Cases.*—Amongst the total seventy-one cases recorded, epistaxis is only referred to as having occurred spontaneously in twelve cases, and varied from a small amount to profuse severe hæmorrhage, and from a single bleeding to frequent repeated hæmorrhages.

(*b*) *In Operated Cases.*—Amongst the total seventy-one cases, operative treatment was only definitely stated to have been carried out in thirty-nine cases; so we may conclude that the remainder were not interfered with. Removal by forceps was employed in nineteen cases, the cold wire snare in five cases, the galvano-cautery in eight cases, thyrofissure in six. Suspension laryngoscopy and excision with scissors in one case, and radium in one case. Amongst these thirty-nine cases operated on, considerable or severe hæmorrhage occurred in twenty-five cases, and no hæmorrhage or only slight bleeding occurred in fourteen cases. In the nineteen cases in which the tumour was removed by forceps, severe bleeding occurred in seven cases, slight bleeding in four, and none in eight cases. In the five cases in which the tumour was removed by the cold snare, severe bleeding occurred in two cases, slight bleeding in two, and none in one case. In the seven cases in which the tumour was removed by the galvano-cautery snare, severe bleeding occurred in three cases, slight bleeding in two cases, and none in two cases. In the six cases of thyrofissure there was no bleeding, and also in the single case treated by radium.

In the entire series of seventy-one cases no death has been recorded from spontaneous hæmorrhage. Death has occurred in only three cases from hæmorrhage—e.g., in a case recorded by Ferrari,[1] following the removal of a piece for microscopical examination; in a case of Shurley's,[2] during a tracheotomy, through cutting into the growth; and in a case of Navratil's,[3] the cause of which is not stated. Chiari[4] in referring to this case says the growth was a myxo-angeioma, rich in vessels, and not a true angeioma. In a case reported by Norman Patterson[5], the patient was only saved from death following post-operative hæmorrhage, by an urgent tracheotomy and removal of a large blood-clot which had blocked the bronchi and lower portion of the trachea.

TREATMENT.

Non-Operative.

(1) *Sulpho-ricinate of Phenol.*—The employment of this preparation has proved successful in a case reported by T. K. Hamilton[6] and may be of service in some cases.

[1] *Lo Sperimentale*, Firenze, 1888, lxii, pp. 593-601.
[2] "Diseases of Nose and Throat," 1900, p. 570.
[3] *Internat. Centralbl. f. Laryngol.*, 1910, xxvi, p. 151.
[4] *Archiv f. Laryngol. u. Rhinol.*, 1896, v, p. 100.
[5] *Proc. Roy. Soc. Med.*, 1920 (Sect. Laryng.), xiii, p. 180.
[6] *Austral. Med. Gaz.*, 1899, April 20.

(2) *Application of Radium.*—The satisfactory results in a case recorded by Ryerson[1] should encourage further trial in similar cases.

Operative.

If the tumour is not causing any serious trouble it is best left alone, and in view of the opinion that the nasal obstruction may encourage the growth of the tumour, it is recommended that any obstruction or catarrh should be remedied. If slight hæmorrhage occurs it may be treated by the application of the galvano-cautery to the bleeding point.

ENDOLARYNGEAL REMOVAL.

The Indirect Method: By Forceps, Cold Snare, Galvano-cautery Puncture, Galvano-cautery Snare.

If the tumour causes serious symptoms, such as respiratory obstruction, or if repeated hæmorrhages occur, removal of the mass is indicated, and this may be accomplished by means of endolaryngeal forceps, the snare or galvano-cautery. Hirsch[2] remarks that if the tumour is very small, and has no pedicle, it cannot be removed by the snare or forceps, so the galvano-cautery affords the best means for destroying it. In view of the hæmorrhage which may occur Vitto-Massei[3] recommends that tracheotomy should precede removal, even by the galvano-cautery. On the other hand, Chiari advises that tracheotomy should only be performed if it is impossible to arrest any accompanying hæmorrhage by other methods.

As shown by the records, hæmorrhage is not usually troublesome in the case of smaller growths, and the excessive hæmorrhage which has occurred in a few cases after endolaryngeal removal has been easily arrested by endolaryngeal methods. In a case of severe post-operative bleeding reported by Biaggi[4] it was controlled by gelatine enemata.

Rille[5] (Innsbrück) recommends the following gelatine injections:—

Gelatine alba	3·0
Dissolved in distilled water	300·0
Sodium chloride	1·50

Sterilize for a quarter of an hour.

[1] *Journ. Canadian Med. Assoc.*, 1912, n.s., ii, p. 111.
[2] *Wien. klin. Wochenschr.*, 1908, xxi, pp. 592-594.
[3] *Bollett. d. melattie dell' Orecchio*," &c., 1906, xxiv, pp. 109-114.
[4] *Internat. Centralbl. f. Laryngol.*, 1905, xxi, p. 464.
[5] *Wien. klin. Wochenschr.*, 1901, No. 47.

Still the fact remains that the danger of endolaryngeal removal by forceps, snare or galvano-cautery must be considered from the point of view of the risk of exposing the patient to hæmorrhage, difficult to arrest (in some cases) endolaryngeally, the possibility of severe laryngeal spasm, and of the entrance of blood into the bronchi. The risk is well shown by the cases of Ferrari and Norman Patterson previously mentioned.

The Direct Per-oral Method.

(*a*) *By Means of Laryngeal Tube Spatulæ.*—This method is to be recommended, since, if bleeding occurs, the endoscopic tube may be employed as an intubation tube, and an intratracheal suction tube attached to Kelly's apparatus passed down the endoscopic tube. By this means any blood which may enter the respiratory passages can be immediately removed and the necessity of an urgent tracheotomy avoided.

(*b*) *By Means of the Suspension Apparatus.*—Experience has shown the ease with which growths of the epiglottis and aryepiglottic folds may be removed by this procedure, and this method is admirably adapted for the removal of angeiomatous tumours, especially those situated in the aryepiglottic region. A preliminary laryngotomy or tracheotomy should always first be performed, in order to avoid the risk of an urgent operation when a hæmorrhage has occurred, and the life of the patient is in danger.

Robert Clyde Lynch[1] (New Orleans), during the discussion on a case reported by Emil Mayer,[1] suggested the use of the suspension apparatus in those cases in which it was possible to get underneath and around the place of attachment of these tumours, and especially if the surface is not too broad.

The case recorded by Norman Patterson and Pike in which the growth was removed by suspension laryngoscopy occurred after completion of this monograph, and it is interesting to note that consequent on their experience in this case they recommend preliminary tracheotomy. This opinion coincides with the conclusion arrived at by the writer after a careful study of all the recorded cases. It is remarkable, considering the great rarity of these tumours, that following an interval of fourteen years two cases should be brought to the notice of the Section of Laryngology, Royal Society of Medicine, within a year of each other.

[1] *Trans. Amer. Laryngol. Assoc.*, 1916, p. 190.

Though the results of endolaryngeal treatment have been satisfactory in many cases, it is as a rule much safer, if operative interference is indicated, to perform a thyrofissure.

EXTRALARYNGEAL ROUTE.

Thyrofissure.

Since the occurrence of hæmorrhage in the removal of the growth is due to opening into the cavernous spaces, this can be avoided in the non-pedunculated forms affecting the ventricular bands or vocal cords by the performance of thyrofissure, with the advantage that a wide sweep can be made through normal tissue round the growth, as in the case of intrinsic malignant disease. In this way bleeding is practically *nil*, and any hæmorrhage which does occur can be easily controlled. Improvements during recent years in the technique of the operation have done away with the risk of opening the larynx.

Toubert,[1] Edmund Mayer,[2] Emil Mayer[3] and others advocate removal by thyrofissure on the grounds of the risk of hæmorrhage. Emil Mayer[3] has performed this operation under local anæsthesia in one case, in which a thorough excision of the tumour was carried out, with only slight bleeding, the cut surface of the mucous membrane being afterwards re-united by its edges with sutures, thus restoring the continuity of the mucous membrane.

Hamilton White[4] remarks that the satisfactory results of thyrofissure lead one to believe that this operation should be undertaken, and the more so since the risks of endolaryngeal operations have been shown to be so uncertain.

Richardson[5] has pointed out the importance of angeioma cavernosum being differentiated from lympho-angeioma, since the latter may be safely dealt with endolaryngeally, and does not require in any case thyrofissure.

[1] *Bull. et mém. Soc. Franç. d'Oto-Rhino-Laryngol.*, 1912, xxviii, p. 144.
[2] *Internat. Centralbl. f. Laryngol.*, 1904, xx, p. 416.
[3] *Trans. Amer. Laryngol. Assoc.*, 1916, p. 190.
[4] *Wien. klin. Wochenschr.*, 1908, xxi, p. 571.
[5] *Trans. Amer. Laryngol. Assoc.*, 1917, p. 194.