LEIOMYOMA OF THE ORAL CAVITY

ARTHUR PURDY STOUT, M.D.

(From the Surgical Pathology Laboratory of the College of Physicians and Surgeons, Columbia University, and the Department of Surgery, the Presbyterian Hospital, New York City)

It is well known that leiomyomas of both benign and malignant form may arise from the smooth muscle of any of those parts of the alimentary tube which are provided with muscular coats. They are smoothly circumscribed tumors, sometimes nodular, which form masses in the wall of the tube and are rather prone to ulceration accompanied by severe hemorrhages, although they are not usually vascular. They are not painful.

Leiomyoma is found also in the skin and subcutaneous tissues. Although uncommon, it is not really rare, for there are in the Surgical Pathology laboratory of Columbia University records and preparations of 38 cases. It occurs both as a solitary tumor and also occasionally in multiple form. A remarkable clinical feature is the frequent occurrence in the tumors of marked tenderness or pain, or both. The pain is sometimes of paroxysmal character. These skin leiomyomas have been traced to the various smooth muscle structures found in that organ, especially the muscular coats of vessels, the arrectores pilorum, musculi diagonales cutis, and the special muscles of the sexual spheres, while some of the tumors are undoubtedly dysontogenetic neoplasms. They may develop as solid tumors composed very largely of interlaced bands of smooth muscle with only an insignificant vascular supply, or they may have a large number of vessels with thick muscular walls. These vessels are peculiar, resembling no normal vessel, since the smooth muscle in the wall is disoriented instead of being arranged in definite coats, and often it interdigitates at its periphery with the smooth muscle of the tumor.

Between the esophagus and the skin lies the oral cavity, a complex portion of the alimentary tube which is very largely covered by a pavement mucosa of ectodermal origin, genetically related to the skin. It is not provided, however, with the characteristic muscular structures of the skin and there is also lacking the smooth muscle coat of the rest of the alimentary tube. Schumacher reports that according to Schaffner bundles of smooth muscle are an inconstant finding in the circumvallate papillae of the tongue, but apparently they are not found elsewhere in the cavity. The blood vessels, therefore, furnish the principal supply of smooth muscle in the oral cavity. It is reasonable to suppose that because of this scarcity of smooth muscle leiomyomas would be uncommon in this region, and such in fact is the case, for the writer has been able to find records of only 4 undoubted cases. It is possible that some others reported as angiomatous or fibro-angiomas may have been, in truth, examples of the vascular type of leiomyoma, but the tumors were not examined and reported with sufficient detail to enable one to judge.

The earliest recorded case of leiomyoma was reported by Blanc in 1884. The patient was a thirty-three-year-old male. For twelve years people had
remarked upon a peculiar quality in his voice. This was the only symptom, for the tumor occasioned no pain or discomfort. It was the size of a large egg and projected from the base of the tongue in the tonsillar region. Several pieces were removed with the aid of a wire. Infection and necrosis in the tumor resulted, and the patient finally spat out the dead remnants of the growth. Five months later there was no evidence of the neoplasm. The microscopic examination was made by Leclerc and Chandelux, who reported that the specimen was composed of a large amount of fibrous tissue and a smaller amount of smooth muscle.

The next case was described by Fein in 1905. His patient was a twenty-year-old girl, who complained of a sore throat of a few days duration. Examination revealed an acute pharyngitis, but there was also seen, hanging down from the left side of the posterior border of the palate, a tumor the size of a small bean. It was pale yellowish-red and soft. On inquiry the patient stated that she had seen this in the mirror, but as it never caused any symptoms, she thought it was a normal structure. Fein excised it and C. Sternberg examined it. It was a pure smooth-muscle tumor composed of interlaced muscle bundles with very little connective tissue, and covered with stratified squamous epithelium. There is no mention of blood vessels, and these are not shown in the drawing of the microscopic preparation.

In the same year Glas described a case in a forty-four-year-old man. For several years he had suffered from a scratchy sensation in his throat and was constantly hawking. Examination showed a small, walnut-sized tumor in the median terminal sulcus of the tongue near the site of the foramen caecum. It was somewhat elastic. Having been shown by biopsy to be benign, it was excised with the galvanocautery. The wound healed well and the case was not followed. The tumor was composed of smooth muscle with a good deal of fibrous tissue between the bundles, but no connection with vascular muscle could be traced. There were some mucous glands scattered in it, and there were elastic fibers in the fibrous layers. Squamous epithelium covered the tumor. Glas called it an adenomyoma. He believed that it was a congenital tumor associated with the ductus lingualis. He suggested that Blanc's case came from a circumvallate papilla.

Weil reported the fourth case in 1914. This patient, a man sixty-nine years old, had previously had a leiomyoma removed from the larynx. The present tumor hung down from the posterior surface of the uvula and was the size and shape of half a plum. Its presence had been known for two years. It was removed with the electrocautery. Weil states that the microscopic examination was done by Koritschoner, who reported that it was a leiomyoma with large vascular spaces. Unfortunately, no other details are given.

**Case Reports**

Case I. (S. P. 45007): E. B., a man fifty years old, first came to Dr. John D. Kernan on Jan. 30, 1931, complaining of "sore throat" of five weeks duration and a sensation of a "tumor in the throat" for three weeks. Examination showed a soft, fluctuating, movable tumor on the left side at the base of the tongue, projecting between it and the epiglottis. It was believed to be an angioma or a cyst. It was removed with a snare March 5, 1931. The wound had healed by the end of the month. Examination of the patient on March 27, 1937, six years after operation, showed no evidence of reappearance of the growth.
Fig. 1. Case I: Longitudinal section showing the encapsulated tumor lying immediately beneath the mucosa except where it is separated from it by the extravasated blood (the dark material at both sides and below).

The larger vessels are easily distinguished. The tissue between these is fibrous and muscular with some smaller vessels and adipose tissue.

Fig. 2. Case I: One of the smaller vessels cut tangentially, lined by endothelium. High magnification.

The smooth muscle, easily distinguished by its myofibrils, parallels the lumen above and below it, extending to the confines of the picture.
The excised specimen was an ovoid mass measuring 3 × 2 × 1.5 cm. Most of the surface was covered by a smooth, glistening mucous membrane which had a bluish-black tint. Its divided pedicle measured 11 mm. in diameter. Longitudinal section showed a sharply defined, apparently encapsulated tumor measuring 14 × 8 mm., the cut surface of which was grayish-brown and showed the cut ends of several tiny thick-walled tubes. The tumor was surrounded by extravasated blood except where it impinged upon the covering mucosa.

Microscopic preparations show that the tumor is sharply circumscribed by the extravasated blood, which separates it from the surrounding submucosal tissues. Where the blood is absent there is a fibrous capsule (Fig. 1). The tumor is composed chiefly of dense fibrous tissue and bands of smooth muscle fibers in the proportion of two parts of fibrous tissue to one part of smooth muscle. In places a small amount of adult lipoid tissue is intermingled with these. The smooth muscle is found in greatest quantities around the periphery. In all parts of the tumor, but in widely varying numbers, are blood vessels. Most of these have thick walls composed of irregularly disposed bands of connective tissue and smooth muscle which sometimes blends with the smooth muscle of the body of the tumor. Some of these vessels contain varying amounts of elastic tissue arranged as it is in veins; in others there is no elastic tissue. In addition to the vessels with muscular walls are others with only fibrous walls. All the vessels have an endothelial lining (Fig. 2), and most of them contain red blood cells. The specimen is covered with stratified squamous epithelium.

This tumor is in every respect like the vascular type of leiomyoma found in the skin and subcutaneous tissues, which has been recently described by the writer. A survey of the vascular and leiomyomatous tumors which have been reported as occurring in the oral cavity and pharynx failed to reveal any comparable to this, except possibly Weil's case. It seems fair to assume that its smooth muscle component is derived from vascular smooth muscle.

CASE II (P & S 12670): A woman aged twenty-nine had had for an undetermined number of years a pedunculated, mucosa-covered growth on the dorsal surface of the tongue near the left lateral margin, about half way between the tip and the epiglottis. It occasioned no symptoms. It was 1 cm. long and 5 mm. in diameter. It was excised Feb. 4, 1933, by Dr. Henry S. Dunning. The wound healed promptly.

The excised specimen was a soft, pedunculated tumor 1 cm. in length attached to a bit of mucous membrane from the tongue. It was covered with smooth, pale mucosa and had a soft, pallid fibrous core.

Microscopic examination shows that the growth has been cut longitudinally and is covered with stratified mucosal epithelium without any taste buds (Fig. 3). Beneath this is a large amount of fibrous tissue, and mixed with it at varying intervals are numerous slender bands of smooth muscle fibers. Most of these run at right angles to the long axis of the tumor so that they appear in cross section, but there are a few cut longitudinally (Fig. 4). They resemble normal smooth muscle and have no relationship with blood vessels. Aside from a few normal-appearing blood vessels and nerve twigs, no other structures are identifiable except a few striated muscle fibers in the base of the pedicle.

This tumor is quite different from the preceding one, since it has no relationship with blood vessels. It seems probable that this is in the nature of a nevoid hypertrophy of a circumvallate papilla.

The four previously reported tumors and the two herewith presented form a group too small for conclusions. One can only summarize the facts. Four of the patients were males and 2 were females, their ages varying from twenty to sixty-nine years. Three of the tumors were in the base of the tongue, one in the region of the circumvallate papillae, one at the posterior edge of the soft palate, and one on the posterior surface of the uvula. All of them were
superficial and 3 of them, the cases of Fein and Weil, together with the writer's second case, were pedunculated. They were all painless, the only symptoms being those due to the presence of a mass in the upper or lower part of the posterior oral region. The first case recorded in this paper was a vascular leiomyoma derived almost certainly from the smooth muscle of blood vessels, and it is possible that Weil's case was also of this nature. Blanc's tumor may have come from the overgrowth of the smooth muscle in a circumvallate papilla of the tongue, and Glas's tumor may have come from this source or,
as he suggested, from remnants of the ductus lingualis. There were some mucous glands scattered through it. The writer's second case may have been a nevoid, non-functioning, circumvallate papilla and Fein's pedunculated tumor of the soft palate was probably also a dysontogenetic neoplasm.

**Summary**

Two leiomyomatous neoplasms are reported. One, a vascular type of leiomyoma, developed in the base of the tongue and was probably derived from the smooth muscle of blood vessels. The other, a pedunculated tumor from the dorsum of the tongue, was probably a dysontogenetic circumvallate papilla. Four other reported leiomyomas in the oral cavity are reviewed. It is suggested that an explanation for the apparent rare occurrence of leiomyomas in the oral cavity is to be found in the paucity of smooth muscle in that part of the body.

**Bibliography**

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