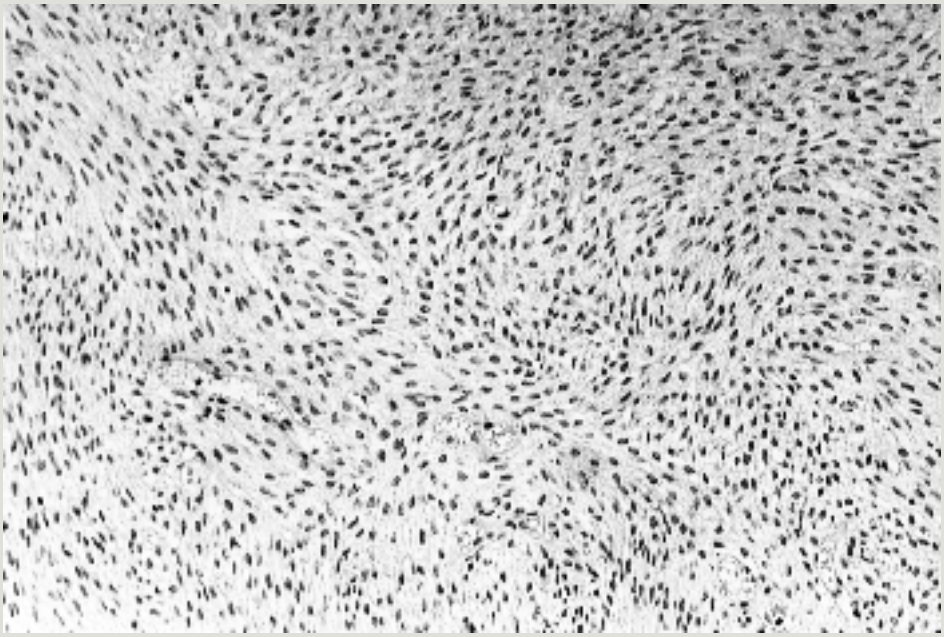

Fig. 3. The tumor cells were composed of spindle cells. Hematoxylin-eosin, original magnification × 200

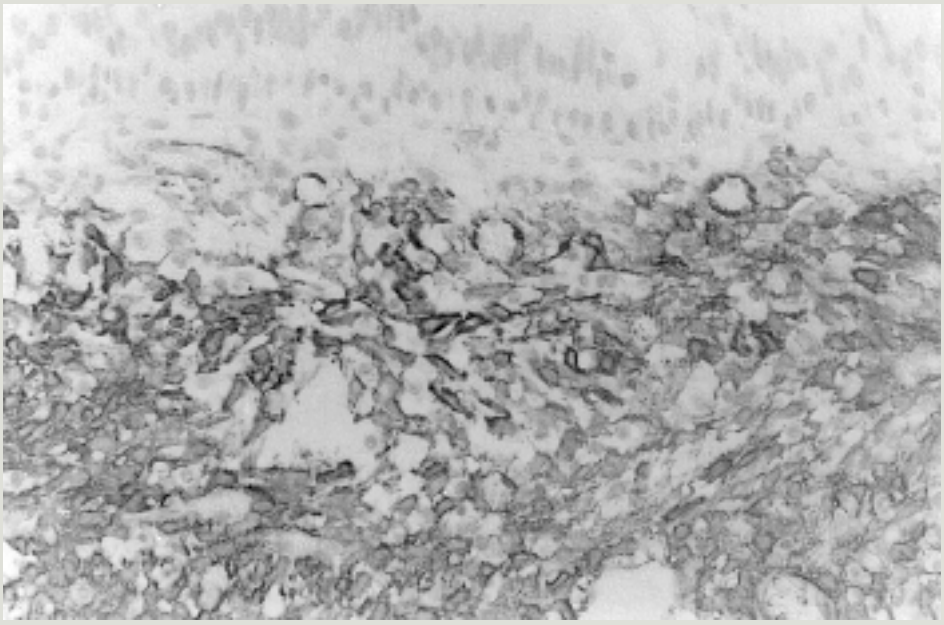

Fig. 4. The tumor cells were diffusely positive for alpha smooth muscle actin. Immunostaining for alpha smooth muscle actin (original magnification × 200).

et al., 1989; Barr et al., 1990; Ragbeer and Stone, 1990; Sawada, 1990; Van Ingen et al., 1991; Khan et al., 1994; Ardekian et al., 1996; Llorente et al., 1996). Therefore, the present case is very rare. The rarity of smooth muscle tumors in the nasal cavity and paranasal sinuses is probably due to the paucity of smooth muscle fibers in this location.

Table 1. Previous cases of leiomyoma of the nasal cabity and paranasal sinuses

	Author(s)	Reference number	Year	Location
1	Maesaka et al.	16	1966	Vestibule
2	Ram	21	1971	Inferior turbinate
3	Schwartzman and Schwartzman	23	1973	Sinuses and nasal fossa
4	Wolfwitz and Schmaman	27	1973	Inferior turbinate
5	Kotaka and Furuya	11	1973	Nasal cavity
6	Timirgaleev	25	1973	Nasal septum
7	Fu and Perzin	6	1975	Nasal cavity
8	McCaffrey et al.	14	1978	Inferior turbinate
9	Papavasiliou and Michaels	19	1981	Middle turbinate
10	Lijovetzky et al.	12	1985	Vestibule
11	Daisley	4	1987	Middle turbinate
12	Tang and Tse	24	1988	Inferior turbinate
13	Hanna et al.	8	1988	Inferior turbinate
14	Nam et al.	18	1988	Vestibule
15	Ragbeer and Stone	20	1990	Nasal floor
16	Sawada	22	1990	Vestibule
17	Barr et al.	2	1990	Nasal septum
18	Van Ingen et al.	26	1991	Choana
19	Harcourt and Gallimore	9	1993	Ethnocide sinus
20	Khan et al.	10	1994	Inferior turbinate
21	Llorente et al.	13	1996	Nasal septum
22	Ardekian et al.	1	1996	Nasal septum
23	Nall et al.	17	1997	Superior turbinate
24	Horie et al.	Present case	2001	Nasal septum

Leiomyomas of the skin and subcutis are usually divided into vascular and nonvascular types. In the nasal cavity, three hypotheses have been given for the origin of smooth muscle tumors: from aberrant undifferentiated mesenchyme; from smooth muscle elements in the wall of blood vessels; or from both sources (Batsakis, 1979). Most of the authors support the idea that the vascular smooth muscle is the origin of the tumor.

In agreement with Barr et al. (1990) and Llorente et al. (1996), we think that the origin of this type of nasal septal leiomyoma is from the smooth muscle component of a blood vessel, because of the absense of the other types of muscle in the septum.

In the present case, the cellularity of the tumor was higher than the usual leiomyoma in other sites. We diagnosed this case as cellular leiomyoma. There have not been any reported cases of cellular leiomyoma of the nasal cavity.

Several stains have been used to identify leiomyoma including desmin, vimentin, Masson's trichrome, actin and myosin (Maeda and Osaki, 1989). In our case, the tumor was strongly positive for alpha smooth muscle actin, supporting the diagnosis of leiomyoma.

The current treatment is surgical resection and there are only a few reports of recurrence in the literature (Hanna et al., 1988; Khan et al., 1994). Because of the vascularity of the lesion in this case, we elected to embolize the feeding vessels prior to surgical resection.

In summary, leiomyomas of the nasal cavity are extremely rare. This case is the 24th reported case in the literature. The exact origin of these tumors is not known, but most agree that the etiology is probably from smooth muscle cells in the walls of blood vessels. Surgical excision of these benign tumors yields high cure rates.

References

1 Ardekian L, Samet N, Talmi YP, Roth Y, Bendet E, Kronenberg J. Vascular leiomyoma of the nasal septum. Otolaryngol Head Neck Surg 1996;114:798–800.

2 Barr GD, More IAR, McCallum HM. Leiomyoma of the nasal septum. J Laryngol Otol 1990; 104:891–893.
3 Batsakis JG. Tumors of the head and neck. Clinical and pathological considerations. 2nd ed. Baltimore: Williams and Wilkins; 1979. p. 354–356.
4 Daisley H. Leiomyoma of the nasal cavity. West Indian Med J 1987;36:181.
5 Enainger FM, Weiss SW. Soft tissue tumors. 3rd ed. St. Louis: CV Mosby; 1995. p. 467–491.
6 Fu YS, Perzin KH. Non-epithelial tumors of the nasal cavity, paranasal sinuses, and nasopharynx: a clinicopathologic study. IV. Smooth muscle tumoures (leiomyoma, leiomyosarcoma). Cancer 1975;35:1300–1308.
7 Hachisuga T, Hashimoto H, Enjoji M. Angioleiomyoma: a clinicopathologic reappraisal of 562 cases. Cancer 1984;84:126– 130.
8 Hanna GS, Akosa AB, Ali MH. Vascular leiomyoma of the inferior turbinate—report of a case and review of the literature. J Laryngol Otol 1988;102:1159–1160.
9 Harcourt JP, Gallimore AP. Leiomyoma of the paranasal sinuses. J Laryngol Otol 1993;107: 740–741.
10 Khan MHZ, Jones AS, Haqqani MT. Angioleiomyoma of the nasal cavity—report of a case and review of the literature. J Laryngol Otol 1994; 108:244–246.
11 Kotaka S, Furuya H. Leiomyoma of the nasal cavity. Otolaryngology (Tokyo) 1973;456:423–429.
12 Lijovetzky G, Zaarura S, Gai I. Leiomyoma of the nasal cavity. J Laryngol Otol 1985;99:197–200.
13 Llorente JL, Suarez C, Seco M, Garcia A. Leiomyoma of the nasal septum: report of a case and review of the literature. J Laryngol Otol 1996; 110:65–68.
14 MaCaflley TV, McDonald TJ, Unni KK. Leiomyoma of the nasal cavity. Laryngoscope 1978; 92:817–818.
15 Maeda Y, Osaki T. Angiomyoma of the cheek: a case report. J Oral Maxillofac Surg 1989;47: 1090–1093.
16 Maesaka A, Keyaki Y, Nakahoshi T. Nasal angioleiomyoma and leiomyosarcoma: report of 2 cases. Otologia (Fukuoka) 1966;12:42.
17 Nall AV, Stringer SP, Bauglunan RA. Vascular leiomyoma of the superior turbinate: first reported case. Head Neck 1997;19:63–67.
18 Nam HK, Kaufinan MW, WoolfAP. Pathology quiz, case 2. Arch Otolaryngol Head Neck Surg 1989;115:244.
19 Papavasiliou A, Micheaels L. Unusual leiomyoma of the nose (leiomyoblastoma): report of a case. J Laryngol Otol 1981;95:1281.
20 Ragbeer SM, Stone J. Vascular leiomyoma of the nasal cavity: report of a case and review of literature. J Oral Maxllofac Surg 1990;48:1113–1117.
21 Ram M. Fibromyoma of posterior end of inferior turbinal. J Laryngol Otol 1971;85:719–721.
22 Sawada Y. Angioleiomyoma of the nasal cavity. J Oral Maxillofac Surg 1990;48:1100–1101.
23 Schwartzman J, Schwartzman J. Leiomyoma of paranasal sinuses;case report. Laryngoscope 1973;83:1856–1858.
24 Tang SO, Tse CH. Leiomyoma of the nasal cavity. J Laryngol Otol 1988;102:831.
25 Timirgaleev MKH. [Angioleiomyoma of the nasal septum.] Vestn Othorinolaringol 1973;35: 106.
26 Van Ingen G, Stel HV, Tiwari RM. Atypical leiomyoma of the choana. J Laryngol Otol 1991; 105:1065–1067.
27 Wolfowitz BL, Schmaman A. Smooth muscle tumours of the upper respiratory tract. S Afr Med J 1973;47:1189–1191.

Received December 11, 2000; accepted January 5, 2001

Corresponding author: Prof. Tadashi Terada