Two Cases of Symptomatic Elongated Styloid Process

Toshifumi Ozawa¹, Mitsuharu Hasegawa², Masahiro Okaue³, Tetsuo Shimoyama¹, Minoru Hori², Mitsuhiko Matsumoto² and Hiroshi Tanaka²

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Abstract
Two cases of elongated styloid process are reported. The first occurred in a 27-year-old man whose only complaint was pain when moving the jaw, and its differential diagnosis was comparatively simple. The second case occurred in a 33-year-old woman, for whose condition differential diagnosis was more difficult, as she presented many symptoms, including neuralgic pain in the face and neck, pain in the pharynx when swallowing, and pain in the region of the temporomandibular joint, radiating to the subauricular and submandibular regions. Following surgical shortening of the elongated styloid process through an intraoral approach, both patients’ symptoms disappeared or were improved.

Introduction
The presence of abnormal elongation of the styloid process may be indicated by various symptoms, and is called styloid or Eagle’s syndrome[1-3]. Typical symptoms are an aching sensation in the throat, similar to chronic pharyngitis, pain when swallowing and pain radiating toward the ear or mastoid region similar to trigeminal neuralgia. In such cases diagnosis is relatively simple through digital palpation of the tonsillar fossa[4]. However, other associated symptoms have been reported in some cases, for example headache, pain in the shoulders and discomfort when opening the mouth[5]. These latter symptoms cannot be seen as clear indications of this condition, and diagnosis is therefore difficult when only such symptoms are present. Many cases have been reported within the field of otorhinolaryngology, as affected patients are often referred when they present symptoms of discomfort in the pharynx and/or pain radiating to the auricular region[6]. However, patients who suffer pain when masticating and/or moving the mandible are sometimes referred to departments of oral and maxillofacial surgery[7]. The two cases described here were treated by surgical shortening of the elongated styloid process through an intraoral approach.

Case Reports

Case 1
The patient was a 27-year-old Japanese man whose chief complaint was pain along the left mandible when opening his mouth or masticating. The patient had noticed the symptoms several months previously. He had been examined at the Department of Otorhinolaryngology, Nihon University School of Medicine, but the cause of his discomfort had not been determined. However tempomandibular joint (TMJ) arthrosis or a problem in the submandibular region was suspected. The patient was therefore referred to the Department of Oral and Maxillofacial Surgery, Nihon University School of Dentistry, for further examination.

Initial findings indicated asymmetry of the patient’s face, with no abnormal signs in the face or neck on digital palpation. When masticating and swallowing, the patient had pain on the left side of the face from the subauricular to the submandibular regions and discomfort of the pharynx. The interincisal distance of the
mouth opening was 45 mm, with no joint noise or pain. There was thus no evidence of temporomandibular joint arthrosis.

Intraoral examination showed no abnormal signs but a bone-like process was palpable in the left tonsillar fossa with severe pain.

X-ray examination revealed that the bilateral styloid processes were excessively elongated, especially the tip of the left process, which extended over the mandibular angle (Figs. 1, 2, and 3). The clinical diagnosis was styloid syndrome, caused by an elongated styloid process on the left side, and surgery to shorten it was performed.

Case 2

The patient, a 33-year-old Japanese woman, was referred directly to the Department of Dentistry and Oral Surgery, Saitama Medical Center, Saitama Medical School. She presented a wide variety of symptoms: neuralgic pain upon opening and closing the mouth in the region of the left submandibular angle, and dysfunction during opening and closing of the mouth. She had also noticed neuralgic pain in the posterior region of the left mandibular ramus, and cervical pain on the left side of the neck for about six months prior to her visit. There was also a one-month history of preauricular paresthesia. She reported that the pain sometimes varied from moderate to neuralgic, and was occasionally associated with pain in the region of the temporomandibular joint.

Extraoral examination showed no abnormal features of the face or neck. External palpation of the neck revealed no lymphadenopathy, but the patient complained of dull pain on the left side of the face and neck, especially in the upper anterior part of the sternocleidomastoid muscle. The interincisal mouth opening was 39 mm. The patient had reciprocal clicking with preauricular pain. When turning her head to the left, right or downward, she felt pain in the region from the left submandibular area to the posterior part of the mandibular ramus.

Intraoral palpation revealed moderate tenderness in the lower part of the left tonsillar fossa, but no tenderness on the right side. A bone-like process seemed to be digitally palpable deep in the left tonsillar fossa, but its presence was not clear.

Findings of a panoramic X-ray (Fig. 4) and computed tomography (CT) showed that the styloid process on the left side was somewhat longer than that on the right and that it was located more anteriorly than normal (Fig. 5). No abnormalities of condylar form were revealed by TMJ X-ray, and no disc displacement was evident by MRI.

Because of difficulty with differential diagnosis, the patient was also referred to the hospital’s pain clinic. However, no clear cause of her discomfort could be found. The patient was prescribed minor tranquilizers and a muscle relaxant to control the pain.

The patient was also referred to the Departments of Otorhinolaryngology and Ophthalmology, but the origin of the pain remained unclear. The final clinical diagnosis was styloid syndrome caused by a suspected elongated left styloid process, and surgery to shorten it was performed.

Treatment

In both cases, the patients were given general anesthesia by nasotracheal intubation. Shortening of the styloid process in each case was achieved surgically through an intraoral approach. A mucosal incision was made in front of the tonsillar fossa (Fig. 6). Further dissection was then performed using a small Kelly’s forceps. The underlying muscles were separated longitudinally from the mucosa using both the forceps and fingers, until the line of the process was clearly palpable, appearing as a rod covered with white periosteum (Fig. 7). A curved elevator was then used to expose the process, by removing the remaining muscular attachments from its posterior and lateral surfaces.

The distal and medial sides of the process were grasped with two pairs of Kelly’s forceps, and force was applied to fracture the process next to the medial clamp, which was positioned at the level of the upper dental arch. Care was taken during these procedures not to damage the external and internal carotid arteries and
the lingual nerve. In this way, bleeding was kept to a minimum.

In Case 1, a section measuring 3.4 cm was removed from the left styloid process, and in Case 2, a section of 1.5 cm was removed, also from the left styloid process (Figs. 8 and 9).

In each case, interrupted sutures were applied to close the wound. These sutures were removed 7 to 10 days later, after completion of healing.

Discussion

Diagnosis of elongated styloid process syndrome is sometimes difficult when patients do not present typical symptoms. In such cases, differential diagnosis must be made among many possible conditions, such as trigeminal neuralgia, TMJ arthrosis, myofacial pain dysfunction syndrome, and migraine[8].

Two classic types of elongated styloid process, varying in their symptoms and etiology, have been described[5,8]. The first type is characterized by dull, repetitive aching when swallowing or moving the tongue, often accompanied by earache, and this may occur after tonsillectomy. In the second type, patients complain of headache and/or vertigo when turning the head, and this seems unrelated to tonsillectomy. This syndrome is thought to be caused by an elongated styloid process pressing upon the carotid arteries, especially when the patient’s head is moved.

Case 1 represented the first type of elongated styloid process syndrome, although the patient had no history of tonsillectomy. Diagnosis was comparatively easy, as the patient reported typical symptoms, and the clinical and X-ray findings were pathognomonic.

Postoperatively, the patient’s symptoms quickly disappeared. Although elongated processes were present on both sides, that on the right was not treated, because the patient reported no symptoms on that side.

In Case 2, diagnosis was more difficult because the symptoms presented were unclear, and moreover headache and vertigo occurred over a wide area. However, this appeared to be an example of the second type of elongated process syndrome. Six months after surgery, most of the patient’s symptoms had disappeared, although she continued to experience some pain on the left side of the neck, and muscular pain in the temporomandibular joint region.

Some authors have stated that prior tonsillectomy is a significant contributory factor to problems from an elongated styloid process[8]. However, another group has reported that tonsillectomy is not an important predetermining factor for this syndrome[5]. The two cases described in this paper seem to support the latter view, as neither patient had history of tonsillectomy before the condition developed.

Conclusion

Two cases of styloid syndrome caused by an elongated styloid process in a 27-year-old man and a 33-year-old woman have been reported. Case 1 was typical of the condition, while in Case 2 Eagle’s syndrome was suspected. Both patients underwent surgery through an intraoral approach to shorten the elongated styloid process. In case 1, the patient’s symptoms disappeared immediately after surgery. In case 2, most of the patient’s symptoms disappeared within six months following surgery, but occasional cervical pain continued on the left side of the neck and some pain remained in the TMJ region.

References


Fig.1 Case 1: Panoramic radiograph showing bilateral elongated styloid process

Fig.2 Case 1: Posteroanterior radiograph showing bilateral elongated process

Fig.3 Case 1: Lateral radiograph of the neck showing the presence of an elongated styloid process on the left side

Fig.4 Case 2: Panoramic radiograph showing an elongated styloid process on the left side

Fig.5 Case 2: Tomograph showing elongated styloid process on the left side
Fig. 6 An intraoral incision was made in front of the tonsillar fossa over the palpable tip of the styloid process (Case 1)

Fig. 7 Photograph showing the exposed styloid process (Case 1)

Fig. 8 Case 1: Removed 3.4 cm segment

Fig. 9 Case 2: Removed 1.5 cm segment