Intraoral Approach in Submandibular Gland Extirpation

Jun-Young You, Kwang-Hee Ko, Hyun-Joong Yoon, Kook-Yeop, Lee
Dept. Oral & Maxillofacial Surgery, Capital Armed Forces General Hospital.

구내접근법을 이용한 악하선 적출

유준영, 고광희, 윤현중, 이국엽
국군 수도 병원, 구강 악안면 외과

타석증을 동반한 만성 악하선 타액선염의 경우 악하선 적출은 일반적인 치료 방법이다. 일반적으로 악하선 적출술은 수술의 용이성, 수술시야의 확보 등의 장점으로 구강외접근에 의해서 시행되어져 왔다. 그러나 시대적으로 심미적인 요구가 증대되고 있는 요즈음 구외접근으로 인한 술후 반흔은 구외접근법의 가장 결정적안 단점이라 할 수 있다. 또한 설하선과 함께 적출하여야 할 경우 구내접근과 구외접근을 동시에 실시할 경우 술후 치유과정상의 후유증을 유발할 수도 있다. 반면에 구강내 접근에 의한 악하선의 적출은 수술상의 고도의 난이도로 수술자체의 어려움은 있으나 구강외 반흔을 남기지 않아 심미적으로 만족할 만한 결과를 얻을 수 있다.

이에 본 저자 등은 타석증을 동반한 악하선 타액선염의 환자에 있어 구내 접근으로 악하선 및 설하선 적출술을 시행하여 좋은 결과를 얻었기에 문헌고찰과 함께 보고하는 바이다.

Introduction

The submandibular salivary gland extirpation is a common procedure in the case of chronic sialadenitis with sialolithiasis. In general, surgical approach in submandibular gland extirpation is performed exrataorally. Its main advantages are easy access, good surgical fields and short operartion time etc. But extraoral submandibular incison result in submandibular scar as its critical disadvantage, so it is not good in esthetics. We were performed submandibular gland extirpaion by intraoral approach in the case of chronic sialadenitis with sialolithiasis. We present this case with review of literature.

Case

A 42-year-old man came to our Department of Oral & Maxillfoacial Surgery, Capital Armed Forces General Hospital, for consultation because of this hard mass on left mouth floor and thick exudate. He recognized hard mass first 3 months ago when palpation for tenderness. And after thattime, he had been experienced several times pain of saliva flushing when he ate food especially sour taste. Clinical, radioghraphic and scintigraphic examination revealed sialolith on intercalate duct, sia-

lodochitis and sialadenitis. So we planned operation by salivary gland extirpation and duct removal involving stone.

Surgical Procedure

The mucosal flaps are developed carefully by blunt and sharp scissor dissection from fibrous attatchment. The mucosal flaps are retracted widely. The sublingual gland is elevated and pushed by blunt cotton wipes from the submandibular duct and lingual nerve branches along the mylohyoid muscle. Care should be taken to ligate any severed branches of the sublingual vessels during this maneuver. The sublingual gland has been removed, but the probe remains in the intact submandibular tract. the lingual nerve is seen coursing medially beneath teh duct. If the duct is demage or sectioned electively, the extractory end should be devided sharply and placed at the edge of the wound to encourage fistulization. The lignual never and sublingual vessels are visible anteriorly, and the peripheral banches of the hypoglossal nerve are run at the posterior edge of the surgical field. Now submandibular gland duct is isolated by blunt or sharp dissection avoiding demage of lingual nerve. After isolation of duct and double ligation of distal and medial end of cutting site, submandibular gland is removed with submandibular gland duct by blunt finger dissection.

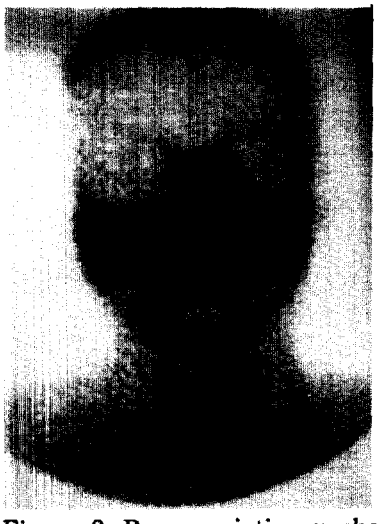

Figure 2. Pre-op scintigram shows sialadenitis and malfunction of left submandibular gland.

Figure 1. Pre-op panoramic view shows a large sialolith on Wharton's duct. (Because routine radiographic survey revealed positive proof of salivary duct stone, the authors do not try sialogram).

Figure 3. The intra-operative view shows Wharton's duct, lingual nerve and hypoglossal nerve which should not be demaged.

Figure 4. This photograph shows excised submandibualr gland, sublingual gland and Wharton's duct with large sialolith.

Figure 5. Post-op clinical view shows tolerable mouth floor scar and good hypoglossal nerve function.

The mucosal edge are loosely appoximated with fine black silk sutures after silastic drain insertion. Removed stone was measured about 1 cm in diameter.

Post surgical treatment and results

After surgery, soft fluid diet was supplied for 7 days. Post-op lingual and hypoglossal nerve demage was abscent. Post-op lingual and hypolossal nerve function was good enough. The results both esthethics and functions were favourable and excellent espscially in esthetics as compared with extraoral appoach.

Discussion

The major salivary glands may be affected by inflammatory processes secondary to infections from bacterial microorganisms. Trauma may also cause inflammation of the glands. The obstructive phase of each process produces degeneration of glandular parenchema, fibrosis and subjective symptoms, and often requires surgical management[1].

Chonic sialadenitis in some instances may have a specific etiology such as granulomatous diseaxe or irradiation. In other instances the etiology is less clear. These cases are refered to as a chronic recurrent sialadenitis. Chronic recurrent sialadenitis is characterized by recurrent painful swelling of salivary glands, usually parotid gland. Pus canbe expressed from the ducts and the organisms most frequently cultured are staphylococci and septococci. Predisposing factors are a decrease rate of secretion, stasis and alteration in composition of the saliva. The more frequent involvement of the parotid maybe a consquence of the anatomy of Stensen's duct. Long and narrow, as compared to the short and wide submandibualr duct, it may therefore be more likely to develop or be more susceptible to alterations in the nature of its secretion[3,8]. The histologic hallmarks of chnoic sialadenitis are fibrisis with loss of acini, chnoinic inflammation, and mucous cell transformation of ductal epithelium. Chnonic sialadenitis may or maynot be associated with sialolithiasis. A total of 80~90% of salivary calculi occur in the submandibualr gland. Less than 10% occur in the parotid. The sublingual gland acconts for approximately 1%, and the minor salivary glands for even less[3,5,7,8]. Flow of saliva agai-

nat gravity in the submandibualr gland, its more alkaline pH, and its high mucin content could explain the preferential stone formation in this gland. A total of 75~85% of all salivary gland stone are radiopaque[8] : however, the majority of parotid stone are radiolucent[3]. Sialolithiasis occurs most ofter in middle age. There ia a slightly increased incidence in man. Occurrence in children is quite rare[3].

Obstruction of the submandibular gland and its duct by calculi is more common than calcereous obstruction of the parotid gland[1]. Seventy-five percent of salivary calculi occur in the submandibular gland and duct and affect more men than women[2]. Swelling, pain and palpable nordularity along the submandibular duct in the floor of the mouth may accompany obstruction of submandibular and sublingual gland secretions. These symptomy become moresevere during meals or after spicy or tart foods or liquids.

Salivary stones are compose primarily of calcium phosphate and an organic matrix containing various amino acids and carbohydrates [2,4,6]. Their etiology and pathgenesis are mostly speculative. The most popular theory is that stone formation is the result of deposition of salt around a nidus of bacteria or inogranic particles. Blatt[2] in his analysis of calculi found the central core to be composed of calcium phosphate, and was unable to recover bacteria or foreign material from this core, thus casting doubt on this theory.

Calculi may be present both within the parenchyma of the gland and within the ducts. They appear to originate at the hilus. Involvement of more than one gland is uncommon[3]. There is no relationship between the presence of stones and the serum calcium and phosphorus levels.

If the stone is large enough to cause obstruction, pain and swelling result. Continued obstruction may lead to infection, oftentimes by streptococcus viridans[3]. Calculi of minor salivary glands most frequently present as asymptomatic masses[5]. Calculi may occasionally pass spontaneously. In most instances surgical removal is necessary.

The first experience of obstruction, and if a solitary calculus canbe palpated and localized within the duct either by a plain rediograph, sialography, or by intraoral ductal probe, intraoral remival of calculus should be attempted. This procedure has been successful in patients who have a single stone which has caused obstruction only once. Follow-up for several months is important bacause obstruction can recuur if the source of the calculus lies with in the parenchyma : new stones formed there may pass distally to obstruct the major duct. Recurrent obstruction of submandibular gland by calculi indicates that a chronic degenerative precess is present in the glandular parenchyma. With each but of obstruction further destruction and fibrosis occur with in the proxomal glandular tissue.

If the sublingual gland also shows signs of obstruction, it too should be excised.

The submandibular salivary gland extirpation is common procedure in the case of chronic sialadenitis with sialolithiasis. In general, surgical approach in submandibular gland extirpation is performed exrtaorally because it has some advantages such as easy access, good surgical fields and easy to bleeding control etc. But extraoral submandibular incison result in submandibular scar of its critical disadvantage, so it is not good in esthetics. Some trials had been performed by some clinicians for same purpose[12,13]. These trials were performed in extension procedure of sublingual gland extirpation which generally is perfomed by intraoral appraoch. In spite of its surgical difficulties such as lingual and hypoglossal ne-

rve demage and bleeding control at surgical field, it avoid extraoral scar resulted in good esthetics.

We had perfomed submandibular gland extripation by intraoral approach in the case of chronic sialadenitis with sialolithiasis and obtained good result. We present this case with review of literliture.

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