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Technical Report

Tongue pyogenic granuloma excision by using ultrasonic scissors

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Abstract Pyogenic granuloma is a benign lesion which is commonly found in the oral cavity. It is a reactive inflammatory process of the injured mucosa to trauma. It can appear as a sessile or pedunculated mass with smooth or lobulated surface, which sometimes can mimic malignant lesion. Excision biopsy of the lesion is the confirmatory investigation which also a treatment tool. We report a case of middle-aged lady who had pyogenic granuloma of the tongue, which was safely excised using ultrasonic scissors. This case highlights the new technique of using ultrasonic instruments for excision of benign tongue lesion, with marked reduction of blood loss and operation time.

Keywords: pyogenic granuloma, tongue, ultrasonic scissors.

Introduction

Pyogenic granuloma develops as a mucosal reaction response to repeated trauma which can be a physical trauma or chronic infection in origin. In the oral cavity, pyogenic granulomas commonly occur on the gingiva owing to presence of chronic irritation by the calculus or foreign material in the gingival sulcus (Akyol *et al*., 2001). Tongue is relatively less favorable site for this benign lesion. Although the reason is unclear, the lateral part of the tongue has more risk due to its closer anatomical relation to the teeth or dentures (Croton and Kale, 2003). Surgical excision is the most common treatment of these lesions. Various types of techniques and instruments can be used to excise the lesion. The most commonly used are cold steel instruments and diathermy techniques. A newly developed tool, ultrasonic scissors which are used in abdominal and thoracic surgeries can be safely utilized to treat this lesion on the tongue. A case of partial glossectomy using harmonic instrument in Malaysia was recently reported (Irfan *et al*., 2011). Its use in benign tongue lesion such as pyogenic granuloma is rarely described.

Case summary

A 45 year-old Chinese lady, a known case of Diabetes mellitus presented with swelling at the lateral border of the tongue for the past six months duration. The mass initially started as small pea-sized swelling. It was painless but gradually increased in size. There was history of repeated trauma whereby the mass was accidentally bitten which caused on and off bleeding. There was no other constitutional symptom such as loss of appetite and loss of weight, no history of betel nut chewing or alcohol and tobacco consumption.

Examination revealed a swelling with peduncle attached to the left lateral anterior part of tongue. The surface was irregular and it measured 3x3 cm (Fig. 1). The rest part of the tongue was normal on appearance and palpation. Dental caries were present.

Punch biopsy revealed features suggestive of pyogenic granoloma. She underwent excision of the mass with harmonic scissors (Fig. 2). The excision line on the tongue was outlined using methylene blue. The tip of the tongue was anchored with silk suture and retracted to the opposite site. The harmonic scissors were used to cut along the outlined marks. The operative field was bloodless, and the wound was primarily closed with absorbable sutures. The patient was discharged from ward on the next day with resumption of normal diet.

Discussion

Pyogenic granuloma is a non-neoplastic mass resulted from reaction of tissue growth in response to the trauma. It is usually painful and easily bled. A pedunculated lesion located on the lateral border of the tongue is more susceptible to injury as the premolars are in contact with the mass in every action of mastication as well as articulation.

Figure 1 The arrow shows a lobulated pedunculated pyogenic granuloma of the tongue.

Figure 2 Harmonic scissors used produce bloodless operative field.

Surgical excision is the most common effective treatment for pyogenic granuloma which fails to conservative management. Usually a relatively big lesion is more difficult to be reduced with oral medications, thus excision is rewarding.

Excision of a pyogenic granuloma on the tongue or any other tongue mass usually is associated with bleeding. It is because tongue is a very vascular tissue. Cold steel instruments can be used in these cases, and electrocautery can offer less bleeding from the operative field. However, pain after surgery is higher in patient with mass excised using electrocautery as lateral thermal damage could not be avoided. Sinha and Gallagher in 2003 conducted a comparative study to see the effect of various oral surgical instruments (steel scalpel, carbon dioxide laser, ultrasonic scalpel, and electrosurgery) on wound healing in guinea pig oral mucosa (Sinha and Gallagher, 2003). Faster re-epithelialization and greater tensile strength were seen in ultrasonic scalpel at comparable degree with steel scalpel. However, in term of haemostasis, tissue coagulation and tissue sticking, the ultrasonic scalpel demonstrated the best outcome. The median blood loss can be as low as 0 ml (Yuen and Wong, 2005).

Ultrasonic instruments are widely used in general surgery for abdominal and thoracic surgeries. It works by generating the high-frequency harmonic motion of metallic rod. The vibration produced by the rod will easily break the hydrogen bonds and denatures proteins. In the end, the effective cutting effect is produced especially when the amplitude of vibration is set to full power (Yuen and Wong, 2005).

Its use recently is extended for oral procedures including glossectomies. It has been proven to reduce post-operative pain much less than electrocauterization (Pons *et al*., 2009). It is attributed to the ultrasonic hemostasis that is achieved at a low temperature between 50-100°C compared to 150-400°C for the monopolar or electrocoagulation (Feil *et al*., 2005). Besides that, harmonic scissors are able to seal supplying vessels of the tongue up to 6-7 mm at the low amplitude coagulating mode (Yuen and Wong, 2005). Thus, a bloodless operative field which is of crucial importance is achieved with the use of harmonic instruments.

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