

# Management of a complex mandibular wound: a case study

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## Abstract

The management of complex mandibular wounds constitutes challenges for clinicians. The challenge is aggravated in cases of wound dehiscence coupled with flap failure and the presence of a buccal fistula. There is often a need to manage high amounts of wound exudate and saliva while endeavouring to achieve wound healing.

We report on a case of a complex mandibular wound in a 51-year-old Chinese male with mandibular neoplasm. The patient underwent tracheostomy, left modified radical neck dissection, en bloc resection of oral cavity tumour with total parotidectomy, infra-temporal resection and partial pharyngectomy. The wound was complicated by heavy exudate and large amounts of draining saliva as a result of a buccal fistula. This paper describes an innovative approach for managing the wound with dental gum and topical negative pressure dressings, which resulted in good outcomes for the patient.

*Keywords: mandibular wound, complex wound.*

## Introduction

In recent years, topical negative pressure wound therapy (NPWT) or vacuum-assisted closure systems have been used to manage complex wounds in the cranio-maxillofacial region with some success<sup>1</sup>. However, management of complex mandibular wounds with buccal fistulae remains a challenge for many clinicians. Due to the anatomical structure of the head and neck, it is arduous to ensure an airtight seal and maintain negative pressure within the wound as well as manage up to 1100 ml of saliva that may drain from the fistula

on a daily basis. This paper describes an innovative approach and the use of dental gum (Hydrogum™), which was used to create a seal within the mouth and enable the use of NPWT dressings in the management of a large mandibular wound and buccal fistula, until definitive reconstruction could be performed.

## Case report

A 51-year-old Chinese male was first diagnosed with osteomyelitis of the mandible in 2007. He underwent debridement in August 2008 followed by incision and drainage of mandible abscess in February 2009. He subsequently underwent left hemi-mandibulectomy and insertion of a plate in March 2009. However, the plates became infected in April 2009 and had to be removed. Unfortunately, removal of the plate was complicated by the development of a buccal (orocutaneous) fistula, which drained saliva onto the cheek surface. Histology showed a moderately differentiated squamous cell carcinoma was present, and magnetic resonance images demonstrated abnormal soft tissue with heterogenous enhancement in the left masticator space.

The patient was subsequently admitted for left mandibulectomy and creation of pectoras major flap on 19 May 2010. During the same operation, a tracheostomy was

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*Dental gum application into the oral cavity.*

*Patient after operation in May 2010. Dental gum was applied to create a seal onto the fistula entrance to enhance topical negative pressure vacuum.*

created as well as a left modified radical neck dissection, en bloc resection of oral cavity tumour with total parotidectomy, infra-temporal resection and partial pharyngectomy were performed. Histology investigations showed a moderately differentiated squamous cell carcinoma of the oral cavity with invasion into underlying muscle and tissue surrounding the fistula.

Following this extensive surgery, the patient was left with a large wound on the left cheek, which was further complicated by a buccal fistula and a large left pectoras (shoulder region) wound.

It was determined that further reconstruction surgery would be needed. However, while waiting for definitive reconstruction to be performed, it was decided to manage the patient's wound with topical NPWT dressings, but a complete air seal could not be achieved. The nurse wound care specialists were consulted on 29 April 2010 and a creative wound management technique was devised.

### Wound management technique

The key wound management goal was to effectively seal off the wound from the buccal cavity in order to achieve an effective negative pressure dressing that could be initiated and maintained. A secondary aim was to prevent maceration of the skin in the peri-wound area.

The authors initially tried using hydrocolloid (Stomahesive™) strip-paste to seal the opening in the oral cavity, but complete air seal could not be achieved.

On 1 May 2010, dental gum was used to create the seal. The dental gum powder was mixed with water (1:1 proportions) into a paste and impregnated into a piece of gauze. The paste-impregnated gauze was then immediately packed into the opening of the buccal fistula from within the mouth. Foam was placed on the external aspect of the left cheek and left shoulder and negative pressure of 125 mmHg was applied and maintained. The two wound care specialists took one hour to perform this dressing for the patient each time. However, with this method the frequency of dressing change was reduced to once every 48 hours. As the amount of exudate reduced and wound size decreased, the time taken for the dressing change was shortened.

This method of dressing was maintained until the patient underwent definitive reconstruction on 3 June 2010. However,

with this effective wound management, the patient recovered well enough to be discharged and the wound was managed at the out-patient setting of the acute hospital before definitive reconstruction could be performed. The wound started to show good progress and the wound bed was ready for definitive reconstruction to be performed.

The patient was subsequently readmitted and underwent further debridement and free flap reconstruction of the neck defect and surgical skin graft of the deltopectoral wound on 3 June 2010. The patient recovered well and was discharged on 2 July 2010.

### Conclusion

An innovative approach was used to manage the complex mandibular wound and buccal fistula. The use of dental gum enabled the wound to be air-sealed in order for negative pressure dressings to be initiated and maintained. This case study illustrates the need for individualised patient care and creativity in the management of complex mandibular wounds with buccal fistula. Clinical knowledge of alternative options, perseverance and creative innovations contribute much to good patient outcomes<sup>2</sup>.

To date, the authors have managed five patients with buccal fistulae after neck surgery in this manner and have achieved good patient outcomes in all cases. Most importantly, the patients were able to be discharged and managed in out-patient settings until definitive reconstruction could be done or until the fistulae had spontaneously healed.

### References

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