

Functional outcomes following surgical intervention for osteoradionecrosis of the mandible following radiation for head and neck cancer

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Background

Despite recent advances in the treatment of head and neck cancer (HNC), mandibular osteoradionecrosis (ORN) remains a significant complication of radiation treatment for HNC [1]. ORN can cause functional decline with regards to speech and swallowing on a background of already compromised function from previous treatments. Pain, pathologic fractures and oro-cutaneous fistula formation can also occur. Advanced stage ORN is managed surgically with segmental mandibular resection and immediate microvascular reconstruction [2]. An evaluation of the functional speech and swallowing outcomes was undertaken for patients undergoing surgical management of advanced ORN

Method

A single site retrospective review of 10 consecutive patients, at a single, tertiary cancer centre, who underwent surgical management of advanced ORN with free flap reconstruction between January 2014 and December 2019 was completed. Data include the type of flap reconstruction, duration of tracheostomy, duration of hospital stay, and Performance Status Scale for Head and Neck Cancer Normalcy of Diet (PSS-NOD) and Speech Intelligibility (PSS-Speech) [3] scores at baseline and 3 months following surgery.

Results

Participant demographics, length of hospital stay and tracheostomy use are summarised in table 1. Flap reconstructions included anterolateral thigh (n=1), fibular (n=8), deep circumflex iliac artery (DCIA) flap (n=1). Tracheostomy was required for 2 patients with median time to decannulation of 4 days (range 3-5 days). All patients were able to tolerate oral fluids on day 1 post surgery. Two patients required supplemental nutrition via a gastrostomy at three months post surgery. Eight patients were fully intelligible at baseline with PSS- Speech at 100, 2 patients had PSS-Speech: 75. At 3 months post surgery, only 6 were rated fully intelligible with PSS- Speech: 100, whereas 4 were rated at PSS-Speech: 75. Changes in PSS-HN NOD scores are summarised in table 2.

Table 2: PSS-HN normalcy of diet at baseline and 3 months post surgery

	PSS NOD baseline	PSS NOD 3 months
Mean	55	56
StD	17.79	34.46
95%CI	44-66	34.46-77.4

Conclusion

In our small cohort of 10 patients treated with surgery for advanced ORN, increased gastrostomy use and reduced speech intelligibility were noted. Although average PSS-NOD scores had returned to baseline, two of the patients required a gastrostomy at 3 months post surgery. Given the risk of baseline dysphagia in the setting of previous radiation treatment, we use detailed multidimensional pre-operative assessment. Patients are provided with pre-operative counselling regarding the potential impact of surgery on function, and rehabilitative course. Proactive post-operative rehabilitation is implemented to optimise function, and early re-introduction of oral intake post surgery is encouraged. We continue to collect prospective multidimensional swallowing measures to better understand the functional outcomes following surgery for advanced ORN.

Table 1: Patient demographics, length of stay, tracheostomy use

	n= 10
Age (mean, range)	68.5 years (range: 56-81)
Length of hospital stay in days (mean, range)	9 days (7-15)
Tracheostomy	2
Days to decannulation (mean, range)	4 (3-5).

References

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