New Surgical Technique in managing Osteoradionecrosis of the External Auditory Canal

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Background

Osteoradionecrosis of the external auditory canal (EAC) is a rare but well documented complication after radiotherapy treatment for head and neck cancers. Most commonly these cancers¹ are nasopharyngeal, parotid and peri-auricular skin cancer. Radiotherapy treatment can be primary or adjuvant therapy. Presentation can be many years (mean 8 years^{1,2}) after the radiotherapy treatment. Exposed necrotic bone over the EAC is the diagnostic hallmark.

Objectives

We present a new surgical technique used in five patients with chronically discharging ears after ipsilateral radiotherapy. All patients had conservative treatment (microsuction and topical antibiotics) post radiotherapy for a minimum of 10 years prior to having this surgical treatment.

Methods

1. Patient is prepped with betadine solution and draped for surgery.
2. Local anaesthetic (Lignospan) is injected into the EAC.
3. Skin and bone are debrided with a drill and scalpel until it is healthy and bleeding. This excision is restricted to the EAC. Be aware of the anatomy of the EAC as it can be easier to damage important structures.
4. On the contralateral neck which has not be radiated, a full thickness skin graft is harvested. Prior to the harvest, local anaesthetic is injected into the area, and the defect is closed primarily with 4.0 Vicryl. This undamaged skin works best for the graft.
5. The graft is placed over the defect and on top of the now bleeding healthy bone. BIPP is used to pack the ear to keep the graft in the EAC in place. Cotton wool is then placed over the opening of the EAC soaked with betadine.
6. The BIPP and cotton wool is removed in clinic, three weeks post op. Ciprofloxacin drops are given for 1 week. The graft looks “boggy” but this will settle with time.
7. The graft settles around 6 months.

Results

All five grafts healed well, and all symptoms resolved. Healing occurred without stenosis. The longest time for follow up so far is 3 years.

Patient feedback
“stopped all my discharge and stopped the pain when it’s windy. Marvellous!”

Discussion

Osteoradionecrosis is a complication from radiotherapy treatment. The radiotherapy damages the blood vessels and osteocytes. The tissue becomes hypovascular, hypocellular and hypoxic.

Symptoms are^{1,2} crusting, otorrhea, otalgia, hearing impairment, fowl odour, and fistula. High index of suspicion is mandatory for early diagnosis.

Traditional teaching treatment involves regular microsuction, analgesia, both topical and systemic antibiotics and fungal treatment. In the literature hyperbaric oxygen, sequestrectomy and surgery including canaloplasty, mastoidectomy, closure of the EAC and flaps are offered as treatment options.

Different local rotational flaps³ and pedicelled flaps^{4,5,6} are described in the literature to surgically manage this complication. Skin grafts are used for other EAC pathology but to our knowledge this is the first time it has been used for osteoradionecrosis.

Conclusion

Osteoradionecrosis of the EAC is a late sequela of radiotherapy treatment for head and neck cancers. We present five cases of using full thickness skin grafts from the contralateral neck to treat osteoradionecrosis. All grafts healed well and all patients had resolutions of their symptoms.

References

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