The patient underwent an uneventful excision of her left IAC lesion by MCF approach using a modified hockey stick incision for MCF approach (Figure 1). The patient developed wound dehiscence and infection one week post-operatively. Wound debridement, hyperbaric oxygen therapy, and prolonged antibiotic treatment were performed. Results: Complete secondary intention healing occurred. Cosmetic outcome was satisfactory, and no further treatment was required. Conclusions: Wound complications after MCF craniotomy are rare. A thorough history and physical must be performed preoperatively.

Abstract

Objective: We describe a patient who underwent a left middle cranial fossa (MCF) craniotomy for resection of a small internal auditory canal (IAC) tumor with subsequent development of wound breakdown. Management of this complication is described.

Study Design: Case report and literature review.

Methods: A 65 year old female developed wound dehiscence and infection one week after a MCF approach for a left IAC tumor. Prompting of the patient elicited a history of bilateral rhinoplasties with well-concealed scars, likely creating a poorly vascularized skin pedicle. Wound debridement, hyperbaric oxygen therapy, and prolonged antibiotic treatment were performed.

Results: Complete secondary intention healing occurred. Cosmetic outcome was satisfactory, and no further treatment was required.

Conclusions: Wound complications after MCF craniotomy are rare. A thorough history and physical must be performed preoperatively.

Figure 1. Left preauricular modified hockey stick incision for MCF approach

Figure 2. Areas of wound breakdown, including preauricular site and area where skin was button-holed during raising of temporoparietal muscle flap

Figure 3. 2 weeks after application of silicone sheeting overlying dermal regeneration template (Integra®)

Figure 4. 8 weeks after application of silicone sheeting overlying dermal regeneration template (Integra®)

Figure 5. At 4 months, complete secondary-intention healing

Figure 6. At 4 months, complete healing with acceptable cosmetic outcome

Figure 7. Contralateral well-concealed rhinoplasty scar

 Figures

Discussion

• The middle cranial fossa (MCF) approach to the internal auditory canal (IAC) has been in wide use since the approach was first described by House in 1961 (1).
• Proponents of the MCF approach cite superior hearing preservation, facial nerve protection, and excellent exposure of the lateral IAC as advantages of this approach (2).
• Several incisions for the MCF approach have been described, including a vertical incision as proposed by House in his original description (1), a gently curving vertical incision, a “question mark” approach (3), and the modified hockey stick modification of the vertical incision as described here. The inferior extent of each of these incisions is preauricular.
• Extensive literature exists regarding complications of surgery for vestibular schwannomas and for the MCF approach. Studies have centered on the major complications of facial nerve dysfunction and hearing loss (4-5). Other frequently described complications of vestibular schwannoma surgery include cerebrospinal fluid leak, meningitis, and neurovascular complications (6-7).
• In a major review of complications from vestibular schwannoma surgery of all approaches, Sughrue et al. found a 0.6% incidence of wound infections, exclusive of meningitis (8).
• To our knowledge, there has been no previous report of post-MCF approach wound breakdown in the setting of primary surgery in the same operative field.

Case Report

• A 65 year old woman presented to our clinic with a left-sided IAC tumor. This had been followed by magnetic resonance imaging (MRI) for 4 years. Over the previous year, she had begun to develop left-sided hearing loss and vestibular symptoms. Repeat MRI demonstrated growth over the prior year to 5 mm by 11 mm, confined to the IAC. Her past medical history was significant only for the known IAC lesion and a distant smoking history. On initial interview, she described a surgical history limited to hemorhoidectomy, sebaceous cyst removal, and oral surgery.
• The patient underwent an uneventful excision of her left IAC lesion by MCF approach using a left preauricular modified hockey stick incision (Figure 1).
• The patient developed wound dehiscence and infection one week post-operatively. Wound debridement, intravenous antibiotics, and coverage with a pedicled temporoparietal muscle flap were followed by further wound breakdown, including an area where the skin had been button-holed during raising of the temporoparietal muscle flap (Figure 2). Further debridement of necrotic tissue and placement of a dermal regeneration template (Integra®) was performed (Figure 3). Free flap reconstruction was considered. However, the patient was treated with 19 sessions of hyperbaric oxygen and 6 weeks of intravenous ceftriaxone.
• Complete secondary-intention healing occurred over the following 4 months (Figures 4 & 5). Cosmetic outcome was acceptable (Figure 6), and no further treatment was required.
• Further prompting of the patient elicited a history of bilateral rhinoplasties. Re-examination of the patient’s contralateral preauricular region revealed a well-concealed scar (Figure 7). Presumably, the left MCF incision left a poorly vascularized skin pedicle.

Conclusions

• Wound complications after MCF craniotomy are rare.
• A thorough history and physical must be performed preoperatively. Specifically, a history of previous procedures, particularly when the scar may be well-concealed in the operative field, must be elicited to prevent avoidable wound complications.
• Aggressive medical management, including wound debridement, hyperbaric oxygen, and prolonged intravenous antibiotics may preclude the need for extensive reconstruction of wound complications.

References