



Case Report

Intracranial Migration of a Titanium Based Mandibular Plate: A Case Report

Rakan Ali Al-Haidey¹, Abdulkhaliq Ibrahim Al-Hifzi^{2*}, Ali Al-Haidey²

¹College of Medicine, Alfaisal University (AU), Riyadh, Kingdom of Saudi Arabia

²Department of Radiodiagnostics and Medical Imaging, Prince Sultan Military Medical City, As Sulimaniyah, Riyadh, Saudi Arabia

***Corresponding author:** Abdulkhaliq Ibrahim Al-Hifzi, Department of Radiodiagnostics and Medical Imaging, Prince Sultan Military Medical City, Makkah Al Mukarramah Rd, As Sulimaniyah, Riyadh, 12233, Saudi Arabia

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Introduction

The use of hardware plates has been in use for corrective maxillofacial surgeries, or simply put for reposition segments of bone and in cases of craniosynostosis [1]. The most recognizable materials in use are titanium plates and bioresorbable plates with studies comparing them in the sense of infection and stability with no enough data to implement clinical difference [2]. Orthognathic surgery alone can cause condylar resorption rarely [3], making the stability of plates in compromise which might be an underlying causation. Within the concerned caring fields of mainly (yet not limited to) base of skull surgeons and radiologists, recognition of post corrective mandibular plate complication is crucial especially the ones which are not frequently seen as in our case which show intracranial migration of the plate.

Case Presentation

A 45 year old female presented to the emergency department of King Faisal Specialist Hospital and Research Center with a left parotid swelling in September 2015, at that time she was known to have had papillary thyroid cancer with post right hemithyroidectomy in 2007 than in 2011 the patient started to have a left parotid swelling gradually increasing in size A CT scan was done revealing a 47x62 mm left parotid mass with clear extension into the left parapharyngeal and masticator space associated with erosion of the mandibular ramus and clear extension into the

entry of the left intra-alveolar canal, the mass was FDG avid and pathology confirmed the mass was a metastatic papillary thyroid cancer.

A decision of left segmental mandibulectomy, left parotectomy, left sternocleido-mastoidectomy, and flap rotation took place in October 2015 with placement of a reconstructive titanium based plate. On the 7th of January 2020 the patient came to the out-patient clinic for follow-up in which she complained of intermittent pain over left jaw and headache. An MRI was requested and revealed superior migration of the plate indenting the inferior aspect of the left temporal lobe with no parenchymal signal abnormality.

Discussion

Hardware plates use in corrective maxillofacial surgeries and orthognathic surgeries has been in use for a decent period of time, however, sufficient awareness of possible outcomes has not been fulfilled where recent researches showed a shallow idea of complications in terms of infections and especially in stability yet in only a limited number. Our case is a case report of titanium based plate intracranial migration through the middle cranial fossa, fortunately with no subsequent parenchymal damage where only abutment of the left temporal lobe. The first figure will be the presentation of metastasis to the left parotid and erosion to the mandibular ramus, the subsequent one is for FDG-PET.

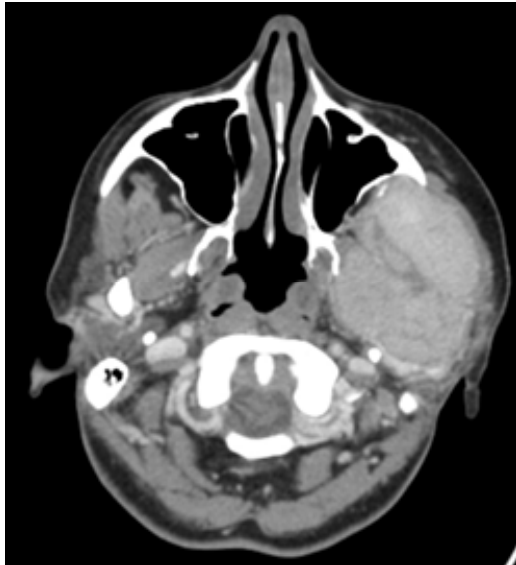


Figure 1: Left parotid soft tissue mass with invasion to the left mandibular ramus and local mass effect.

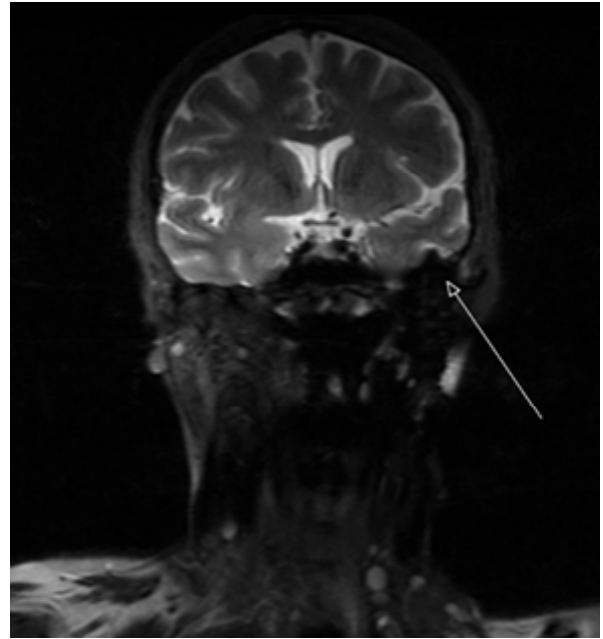


Figure 3: Coronal short T1 inversion recovery (STIR) confirming the intracranial position of the titanium plate cranial tip.

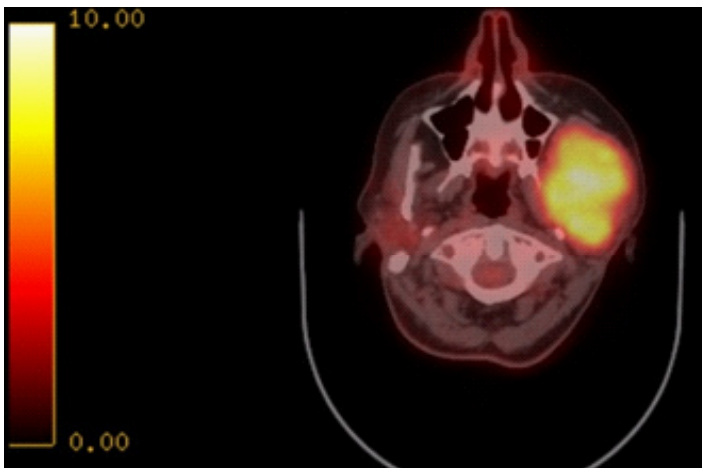


Figure 2: FDG-PET showing intense uptake of the left parotid mass.

A CT and an MRI are requested showing intracranial migration of the proximal tip of the titanium plate with abutment of the left temporal lobe fortunately with no parenchymal signal alteration on MRI.

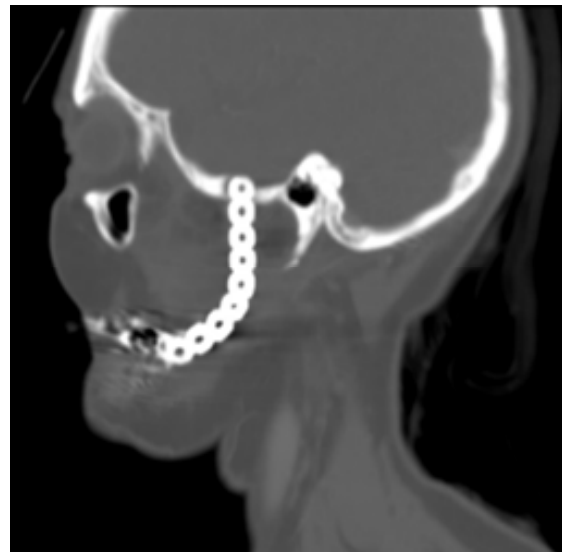


Figure 4: sagittal bone window CT scan shows the cranial tip of the plate in an intracranial position uncovered by bone.

For this particular patient the decision was made of excising the majority of the plate leaving the intracranial part in place for possible CSF leak, which can be complicated by dural tear.

References

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