



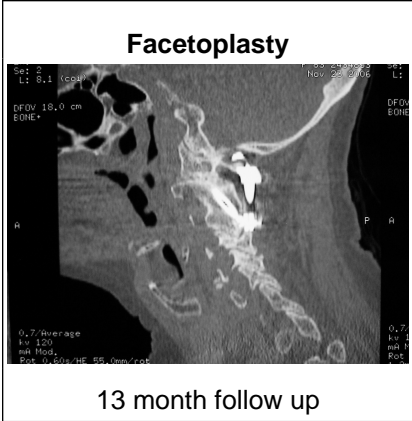
Atlanto-axial fusion following C1-C2 facetoplasty. A long term CT study of 21 patients

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Introduction

The standard technique for bone grafting for atlanto-axial fusion to treat atlanto-axial instability is tricortical graft between the posterior elements of C1 and C2. This is unfavorable for bone fusion, as the posterior elements of C1 and C2 are mostly cortical bone, the bridging distance is large, and the graft is not exposed to loading forces.

We have been using the facet "jamming" technique or facetoplasty, without any posterior grafting as a more physiological alternative. This study looks at the efficacy of this technique using CT.



Methods

We retrospectively examined our C1-C2 fixation experience over 6 years.

The technique involved drilling the C1-C2 facets and filling them with autologous bone graft, following C2 nerve root division. Instrumentation techniques were either transarticular or Goel/Harms technique or a combination thereof.

Of a total of 63 patients, 21 had a CT scan a least 1 year after surgery. Ten patients had unstable fractures, eleven had chronic atlanto-axial instability due to various conditions

Results

Fusion was judged by clearly visible solid bone bridging between articular surfaces of C1 and C2 on CT, with absence of bone resorption around the implants. Eighteen patients had unequivocal fusion on CT, three had a stable non-union. Of these, two did not have any movement visible on flexion/extension X rays, the other had slight movement. Of the three, two were over 75 years old, and the third had choreoathetosis, which may have compromised immobilisation in the post-operative period. There were no clinical complications in the series, and no patient needed revision surgery on follow-up.

Only one patient tolerated poorly numbness related to C2 division.

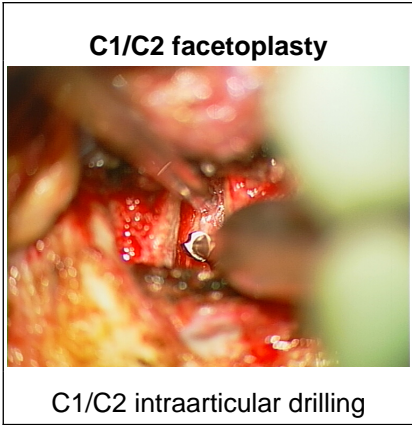
Conclusions

C1-C2 facetoplasty appears to be a safe and effective alternative method of bone grafting for C1-C2 arthrodesis.

CT is a very reliable method for assessing bone fusion

Facetoplasty avoids tricortical graft harvesting and sublaminar wiring

Facetoplasty may be an appropriate technique for patients with non-intact posterior elements.



Learning Objectives

Facetoplasty is an alternative to traditional bone grafting techniques for C1-C2 arthrodesis.

C2 nerve root division has not been a significant clinical problem.

References

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CASE REPORTS AND TECHNICAL NOTES

Atlantoaxial joint jamming as a treatment for atlantoaxial dislocation: a preliminary report

Technical note

Atul Goel, M.Ch.

