

Posterior ligamentous complex reconstruction with artificial ligament in patients without cervical vertebral fracture: a technical note

Introduction

We describe an original surgical technique, advantages with the novel technology, and postoperative condition of patient who was first used of artificial ligament in reconstruction surgery of posterior complex ligamentous (PLC) injuries in patients without lower cervical vertebral fracture. The aim of this technique is to retain the mobility of the injured segment as much as possible on the basis of spinal stability, and try to treat these patients with dynamic reconstruction.

Methods

Detailed description of the reconstruction surgery with artificial ligaments carried out for C4-6 posterior complex ligamentous injuries in a 27-year-old male, with neck pain and restricted movement due to high fall injury accompanied by impaired movement of limbs, is presented.

Results

Immediately postsurgery, the patient's neck pain and quadriparesis had been improved. The spinal canal decompression and cervical spine sequence was satisfactory, the facet joint face was in good position and spinous process spacing returned to normal. After three months of rehabilitation, the patient reported improvement of symptoms, physical and imaging examination showed a significant improvement in the patient's condition. The patient's neck mobility motor function had improved further.

Conclusion

The present data demonstrates that the novel technique for reconstruction of PLC injury is feasible and safe. However, familiarity with cervical anatomy and adequate experience for the lateral mass screws placement during surgery are crucial for this procedure. Therefore, this surgery should be best conducted by a highly experienced cervical surgery team.

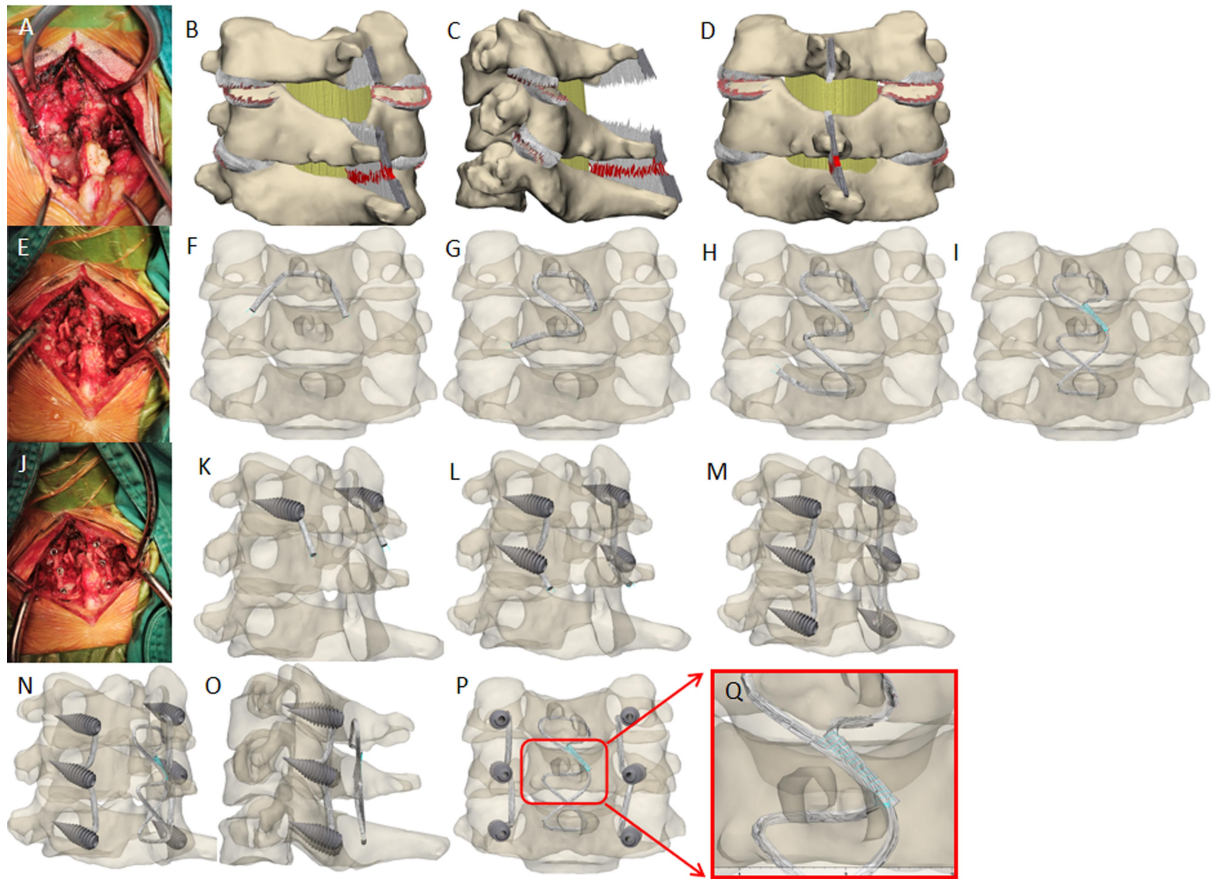


Figure 1 The surgical procedure of posterior ligamentous complex reconstruction. (A-D) Intraoperative image(A), oblique view(B), lateral view(C) and top view(D) three-dimension(3D) reconstruction diagram are shown. (E-I) Procedures of C4-6 artificial ligament reconstruction between spinous processes. (J-M) Procedures of C4-6 facet joint artificial ligament anchoring. (N-Q) The completed state of ligament reconstruction. Oblique view(N), lateral view(O), top view(P) 3D reconstruction diagram and details of end-to-end anastomosis(Q) are shown.