Autologous Clavicle Bone Graft versus Autologous Iliac Bone Graft in Anterior Cervical Discectomy and Fusion

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Disclosure

I acknowledge my continuing obligation to disclose to AANS/NREF/NPA, promptly and in writing, any change in my circumstances.

I further acknowledge that if there is any case where my private interest conflict with the interest of AANS/NREF/NPA, I will indicate and abstain from any vote, speaking engagement, planning related to that issue.
INTRODUCTION

For anterior cervical discectomy and fusion (ACDF), the iliac crest is the most common donor site of autologous bone grafting. Cages maintain disc height, and autologous cancellous bone enhances fusion. However, iliac graft complications include delayed healing, paresthesia, lateral femoral cutaneous nerve injury, infection, hematoma, peritoneal perforation, iliac fractures. In our study, we use autologous cancellous bone obtained from the clavicle for ACDF combined with cage, as a safe reliable alternative to the classic way.
METHODS

Between May 2016 and May 2017, twenty-four patients underwent ACDF. Eleven males and thirteen females, ranging in age from 30 years to 70 years.

Technique: Standard ACDF technique adding a PEEK cage packed with cancellous bone harvested from iliac crest in the classical way in 1st group while 2nd group was harvested from clavicle through a (5x10mm) rectangular osteotomy.
RESULTS

In all patients:

Fusion was (0%, 25%, and 100%) in 1 month, 3 months and 6 months of radiological follow up respectively. VAS pain score was zero at 6 months postoperative in 9 patients of iliac group and 11 patients of clavicle group.
Results

Iliac group:

Four patients experienced postoperative parasthesia over donor site and lateral aspect of thigh, 2 patients experienced delayed healing of donor site, 4 patients experienced hematoma at donor site and only one patient suffered infection of donor site.
Results

Clavicle group:

One patient experienced delayed healing of donor site, 1 patient experienced hematoma at donor site and only one patient suffered infection of donor site.
Discussion

Combined use of autologous bone and a cage is effective for ACDF. However, the iliac crest is not an ideal donor site, because a variety of morbidities. Postoperative donor site pain or paresthesia is one of the major factors influencing patient satisfaction.

In our method, we made a skin incision over the clavicle with harvesting cancellous bone and no patients complained of chronic donor-site pain or paresthesia. Also excellent fusion was obtained and patients were cosmetically satisfied.
Summary

ACDF with autologous Clavicle Bone Graft is superior in:

• Reducing donor-site morbidities and complications.
• Good level of patient satisfaction.
• No donor site pain.
• Better healing.
• Better cosmetic Results.
• High rates of bony fusion.