MICRO LABS LIMITED

ORTHO NEWSCAST

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Dear Doctor,

Greetings from Micro Labs. We are happy to bring you "Ortho Newscast" which contains latest and interesting news in the field of Orthopaedics.

This issue contains

- **Suture anchor technique for Management of unstable lateral end clavicle fracture**
- **Predictors, implications and The Femoral Access Ratio: The varus cemented femoral stem in total hip arthroplasty**
- **Adipose-derived mesenchymal stem cells to treat Hallux rigidus**

Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

Best Regards,

Medical Team,

Micro Labs Limited

1. Suture anchor technique for Management of unstable lateral end clavicle fracture

Introduction: Fracture of the lateral end clavicle especially displaced fractures like the type II b are difficult to manage. Superior displacement due to deforming forces of trapezius and the small distal lateral fracture fragment cause difficulty in surgical management. Suture anchor technique is an easy and reliable way of fixing these fractures and has a superior functional outcome.

Materials and Methods: 153 fracture clavicle out of which 23 are lateral end clavicle fracture of which are stable and treated conservatively among these 11 patients had type 2 unstable distal end fracture and thus underwent surgical intervention.

Results: A total of 11 patients with type II clavicle fractures were enrolled in the study (9 males, 2 females). Mean patient age was 43.1±8.5 years, and mean follow-up period was 25.3 months (range: 12– 56 months). CMS scores for all 11 patients at 3 and 12 months postoperatively were 73.10±5.43 and 91.63±3.72, respectively.

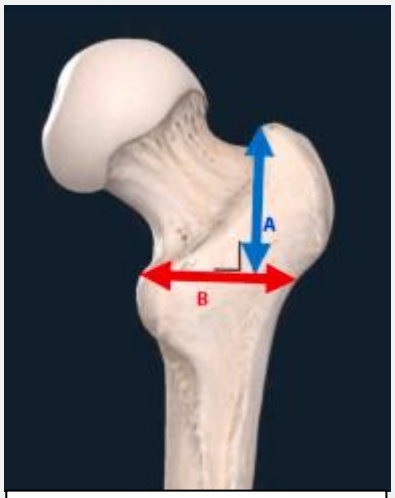
Method of fixation	Challenges	Comments (6)
1.Distal clavicle plating	Small lateral or distal end may not get adequate hold in the small fragment.	Less stability- may lead to nonunion or delayed union or may need longer period of immobilisation
2. Plating that includes acromion	Acromioclavicluar joint is spanned	Excessive soft tissue dissection. Implant induced bursitis
3.K-wires	Easy to finish the surgery	Very less stability. Force so great and large in this area – may lead to break down of k - wire No accurate reduction possible. Loss of fixation and shoulder stiffness. Implant migration
4.Hook plate	Very good stability for very early mobilisation	Sometimes may slip from underneath the acromion and also acromion lysis (4) forcing for implant exit (7)
5. Coracoclavicular screw technique	Less dissection. No implant related irritation	Needs C arm. If no bicortical purchase of screw then early mobilisation cannot be done
6. Suture anchors	Good stable fixation for this fracture.	Early mobilisation. No implant induced irritation to the soft tissues. No need for implant removal

Conclusion: Several methods of fixation with K wire, open reduction and internal fixation (ORIF) with plate and screws spanning the acromioclavicular joint, hook plate, coracoclavicular screw fixation and suture anchor fixation wires have been described in literature. For unstable lateral end clavicle fractures stabilization with suture anchor is a safe, reliable management and less technically demanding mode of management with good results.

Reference: Jagannath PG, et al. Management of unstable lateral end clavicle fracture with suture anchor technique - single centre experience. Int. J. Orthod. Sci., 2021; 7(1): 157-161

2. Predictors, implications and The Femoral Access Ratio: The varus cemented femoral stem in total hip arthroplasty

Introduction: Coronal malalignment of the femoral stem in THA has been associated with the risk of subsidence. To investigate the predictors of femoral stem malalignment a novel morphological ratio, the Femoral Access Ratio(FAR), in the preoperative femur. This ratio considers the greater trochanteric height and how this impacts on the surgeons ability to insert a femoral stem in perfect collinearity with the anatomical axis of the femoral diaphysis.



Femoral access ratio (FAR) (A/B)

Methods: 70 cemented femoral stems were reviewed. Preoperative 'FAR' score was measured. Postoperative coronal stem alignment was measured and ten year survivorship and functional outcomes investigated.

Results

There were three predictors of varus stem malalignment–BMI, GT-height and 'FAR' score. Increasing BMI led to higher rates of malalignment ($p = 0.048$). 'FAR' score <1 lead to 68.4% of varus stems. GT height contributed most to the prediction of varus stem malalignment ($p = 0.013$).

Conclusion

Varus stem malalignment can be predicted by reduced GT height and FAR score. Specifically a FAR score of less than 1 leads to a significantly increased incidence of varus stem malalignment. The severity of varus malalignment also increases in a linear fashion with an increasing BMI.

Reference: Sheridan G. et al. The varus cemented femoral stem in total hip arthroplasty: Predictors, implications and The Femoral Access Ratio. J Orthop. 2021;23- 8-12

3. Adipose-derived mesenchymal stem cells to treat Hallux rigidus

First metatarsophalangeal joint arthritis (FMTPA), also known as hallux rigidus, is the most frequent degenerative disease of the foot. Diagnosis is made through both clinical and radiological evaluation. Regenerative medicine showed promising results in the treatment of early osteoarthritis.

Figure 1 Intraoperative picture showing the autologous adipose-derived mesenchymal stem cells injection into the first metatarsophalangeal joint.

Case summary: A gentleman of 50 years of age presented with a painful hallux rigidus grade 2 resistant to any previous conservative treatment (including nonsteroidal anti-inflammatory drugs and hyaluronic acid injections). An injection of autologous adipose-derived mesenchymal stem cells into the first metatarsophalangeal joint was performed. No adverse events were reported, and both function and pain scales improved after 9 months of follow-up.

Discussion : the use of intra-articular injections of stem cells has been proposed as a promising treatment in early osteoarthritis. In particular, autologous adipose-derived stem cells (AASCS) have attracted considerable attention, considering the easy access to fat tissue and the absence of adverse events registered. These characteristics make AASCS one of the most promising cell types used in regenerative medicine. Hallux rigidus, is the most frequent degenerative disease of the foot. Patients with hallux rigidus present a history of pain, gait discomfort, articular effusion, and a reduction in range of motion. Different types of treatment are available, both conservative and operative, but both are often ineffective. Aascs might overcome the gap between these two methods of treatment.

Conclusion

The FMTP joint injection of mesenchymal stem cells improved symptoms and function in our patient with FMTPA at 9 months of follow-up.

Reference: Braile A, Toro G, De Cicco A, Cecere AB, Zanchini F, Schiavone Panni A. Hallux rigidus treated with adipose-derived mesenchymal stem cells: A case report. World J Orthop 2021; 12(1): 51-55