

# Cadaveric Analysis of Exposure of the Talar Articular Surface through the Posteromedial Approach

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## PURPOSE

- The purpose of this cadaveric study is to assess the talar articular surface visible through a modified posterior medial approach to the ankle joint in an effort to avoid medial malleolar osteotomy for talar osteochondral defects (OCD).

## LITERATURE REVIEW

- Postero-medial talar OCDs can be difficult to visualize during standard anterior ankle arthroscopy. Such instances may necessitate medial malleolar osteotomy in order to gain appropriate visualization.
- Medial malleolar osteotomy may be associated with morbidity, including pain and non-union.
- The posteromedial approach to accessing posterior and central-medial talar osteochondral lesions has previously been described (Bassett 1993, Young 2010) as an alternative to medial malleolar osteotomy takedown.
- We describe a modification of a technique proposed by Young et al. 2010 to gain access to the postero-medial aspect of the ankle joint.

## METHODS

- 7 fresh frozen cadaver specimens were included in the study.
- Surgical technique:
  - A skin incision is made posterior to the medial malleolus (**Figure 1**)
  - The incision is deepened through the flexor retinaculum
  - Dissection is carried between the PT and FDL tendons through the deep PT tendon sheath to access the posteromedial ankle joint (**Figure 2**)
  - The posterior tibiofibular ligament should remain intact
  - A Hinterman is inserted to lightly distract the ankle joint (**Figure 3**)
- The visualized talar surface area was marked using a marker (**Figure 4**)
- The talus was removed to measure the medial to lateral (ML) length and posterior to anterior (AP) length using a flexible ruler (**Figure 5, 6**)



Figure 1

Figure 2

Figure 3

Figure 4

## RESULTS

Specimen #	Visible Talus (ML) (cm)	Visible Talus (PA) (cm)	Total Talus (ML) (cm)	Total Talus (PA) (cm)	% of Talus Visible from M to L	% of Talus Visible from P to A
1	2.4	2.2	3.5	4.3	68.57%	51.16%
2	2.1	2.6	3.3	5.2	63.64%	50.00%
3	1.8	2.5	3.1	4.0	58.06%	62.50%
4	2.0	1.8	3.2	5.1	62.50%	35.29%
5	1.8	1.7	2.8	4.2	64.29%	40.48%
6	1.8	1.6	2.5	4.2	72.00%	38.10%
7	1.4	1.3	2.8	4.3	50.00%	30.23%

- The average articular cartilage visible from medial to lateral was 1.90 cm, or 62.7%
- The average articular cartilage visible from posterior to anterior was 1.96 cm, or 43.77%.

## FIGURES



Figure 5



Figure 6

## DISCUSSION

- Medial malleolar osteotomy is often required to visualize posteromedial talar OCDs that are difficult to visualize with standard anterior ankle arthroscopy.
- Our study suggests that the modified posteromedial approach between the FDL and PT tendons and utilizing a hinterman distractor allows for visualization of common posterior and central-medial lesions.
- When considering the anatomic nine-zone grid scheme proposed by Raikin et al. 2007, zone 4, 7, and 8 lesions can be assessed with this approach (**Figure 7**).

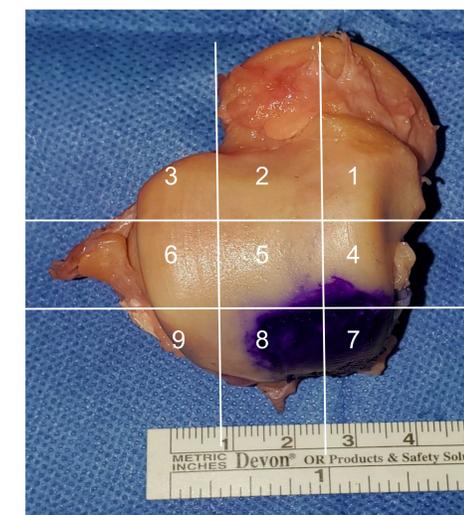


Figure 7

## CONCLUSION

- By utilizing a modified posteromedial approach to the ankle joint, medial malleolar osteotomy can be avoided in order to visualize posterior medial and central medial OCDs of the talus
- A clinical study should be undertaken to evaluate the morbidity of this approach.

## REFERENCES

- Raikin SM, Elias H, Zoga AC, Morrison WB, Besser M, Schweitzer ME. Osteochondral Lesions of the Talus: Localization and Morphologic Data from 424 Patients Using a Novel Anatomical Grid Scheme. *Foot and Ankle International* 2007 28 (2): 154-161
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