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Commentary on Lateral Approach Total Ankle Joint Replacement with Concomitant Rearfoot Procedures: A Retrospective Short Term Outcomes Study

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Description

We conducted a retrospective analysis on 12 patients who underwent lateral approach Total Ankle Arthroplasty (TAA) along with supplementary procedures such as Subtalar joint fusion, Tibionavicular fusion, Syndesmotic repair, First metatarsophalangeal joint fusion, Perineal tendon repair, and Lateral Ankle Ligament stabilization. Results revealed a notable improvement in postoperative AOFAS scores, averaging 89.25 across all patients, surpassing outcomes typically reported for isolated lateral approach TAR. Furthermore, at an average follow-up of 23.7 months, there were no instances of nonunion, and the infection rate remained at 0%. Our study underscores the efficacy of the lateral approach in facilitating additional procedures while ensuring biomechanical stability of the hind foot joint complex. This approach allows for streamlined access to address clinical and radiographic arthritis sequela, potentially obviating the need for staged or omitted hind foot arthrodesis. Moreover, employing a lateral incisional approach enables efficient execution of lateral ankle ligament stabilization procedures and subtler joint preparation for fusion, thereby reducing operative time and anesthesia duration. An IRB exempt retrospective cohort chart review was performed which included a total of 22 patients who underwent total ankle arthroplasty utilizing a lateral approach performed by a single surgeon from April of 2019 to September of 2021. Patients were excluded if follow up was less than one year, 1year post-op AOFAS scores were not available, and no concomitant procedures were performed in addition to TAR. Average age of patients and follow up was 60 years and 23.7 months respectively.

Patients were positioned supine on the operative table with a bump under the ipsilateral hip. An 8 cm incision beginning with the fibula along the sinus tarsi and somewhat poster lateral to the base of the fifth metatarsal. Deep dissection commenced down to periosteal where a fibular osteotomy was performed in an oblique fashion from 2.5 cm proximal to the ankle joint. The anterior talofibular ligament was then sectioned and the posterior capsule and respective ligaments released. The fibula was reflected posteriorly and distally into the calcaneus. Using the Zimmer Biomet (ZB) system, a stabilization and alignment guide was applied to the lower extremity and connected with half pins to realign the ankle in all planes. The fibular osteotomy was repaired with a 3.5 interfragmentary screw in a lag fashion and was supplemented with a locking plate. A lateral incisional approach was used for all subtler joint arthrodesis surgeries, and curettage, subchondral drilling, and fish scaling with a ¼ inch osteotomy was utilized for joint preparation. Fixation was subsequently achieved with one single 6.5 mm partially threated, cannulated screw. For the talonavicular arthrodesis, a 5 cm incision was made along the dorsomedial column and joint preparation was performed in a similar fashion to the subtalar joint utilizing curettage, subchondral drilling, and fish scaling. Fixation was achieved with a 4.0 mm partially threaded cannulated, cancellous lag screw oriented distal medial to proximal lateral across the joint in addition to a locking plate or one 4.0 mm screw with two compression staples. Postoperatively, patients were made non weight bearing for 6 weeks to 8 weeks and progressed to full weight bearing after osseous consolidation had been demonstrated radiographically. Passive range of motion exercises were initiated at the time of incision healing. Physical therapy was initiated at the time of progression to full weight bearing around the 6 weeks to 8 weeks mark.

A total of 12 subjects were included in post-operative analyses after a mean follow up of 23.7 months. There were 9 males and 3 females within this group with an average age of 60.25 years (Range 50-66). Post traumatic arthritis was the most common etiology followed by primary osteoarthritis. The most frequent complication was hypertension in 10 patients followed by elevated cholesterol levels in 4 cases.

At the final follow-up, diagnostic and postoperative radiographs were reviewed, and no wound healing issues were found. Each patient's post-operative AOFAS was computed. Average sagittal ROM was 7.66 and total pain for the cohort at 32.5. Average activity, distance, and surfaces scores were 7.91, 4.83, and 4.33 respectively. Average total AOFAS amongst the entire cohort was reported to be 89.25. Average tourniquet time across the cohort was 126 minutes.

There was one reported complication of medial gutter pain which ultimately required a gutter debridement and hardware removal. There were no reported cases of implant subsidence or per prosthetic latency and all patients stated they would undergo the procedure again.

A key concern with a lateral approach stems around the sectioning of the lateral ankle ligamentous complex. In our center, we have not experienced lateral ankle instability with isolated TAA or in concomitant procedures. No patients in our study had experienced complications related to the fibular osteotomy or lateral ankle ligamentous repair. Gutter impingement has been reported to occur throughout anterior approach anywhere from 17-21% for anterior

approach. Although a limited cohort, we did encounter 1 patient with post-operative medial gutter pain requiring further debridement [1-10].

Ankle-hind foot mean post-operative AOFAS score of 80 was previously reported in a recent cohort of 50 isolated lateral approach TAA patients. Following a final follow-up, our center reported a final mean AOFAS score of 89.25, exceeding previous reports of scores of 84.3 and 86.0 from an anterior approach without concurrent procedures. Our post-operative outcomes and low complication rate have been slightly increased compared to what has been previously reported in the literature at short term follow up. However, this did not meet statistical significance given the absence of preoperative AOFAS scores which is certainly a limitation of this study. Given there has not been any report on TAA with ancillary procedures, we suggest that this approach is safe and allows for more anatomic visualization of the native ankle mortise and allows for additional procedures to be performed through a lateral incision thus decreasing tourniquet time and time under anesthesia. Lateral approach TAA may be considered in patients requiring additional procedures, while certainly subsequent studies with longer follow up will be warranted as the data becomes available [11-27].

References

1. Wallace SB, Hamati M, Lendrum JA, Schultz L, Metzl J, et al. (2022) Noninvasive soft tissue expansion strips and wound complications after total ankle arthroplasty. Foot Ankle In 43: 1540-1547.
2. Reb CW, Watson BC, Fidler CM, van Dyke B, Hyer CF, et al. (2021) Anterior ankle incision wound complications between total ankle replacement and ankle arthrodesis: A matched cohort study. J Foot Ankle Surg 60: 47-50.
3. McKenna BJ, Cook J, Cook EA, Crafton J, Knabel M, et al. (2020) Total ankle arthroplasty survivorship: A meta-analysis. J Foot Ankle Surg 59: 1040-1048.
4. Usuelli FG, Maccario C, Indino C, Manzi L, Gross CE (2017) Tibial slope in total ankle arthroplasty: anterior or lateral approach. Foot Ankle Surg 23: 84-88.
5. Federico GU, Camilla M, Francesco G, Cristian I, Venus V, et al. (2019) Clinical and radiological outcomes of transfibular total ankle arthroplasty. Foot Ankle Int 40: 24-33.
6. George JD, Todd AD, Brandon SM, Robert L (2017) Perioperative complications and initial alignment of lateral approach total ankle arthroplasty. J Foot Ankle Surg 56: 996-1000.
7. Jaeyoung K, Oliver JG, Lavan R, Kristin C, Carolyn S, et al. (2022) Clinical outcomes of the lateral trabecular metal total ankle replacement at a 5-year minimum follow-up. Foot Ankle Spec;16:288-299.
8. Cody EA, Taylor MA, Nunley JA, Parekh SG, deOrio JK (2019) Increased early revision rate with the INFINITY total ankle prosthesis. Foot Ankle Int 40: 9-17.
9. Braden C, Kenneth H , Todd K, Loretta C, Andrew H (2016) Association of short-term complications with procedures through separate incisions during total ankle replacement. Foot Ankle Int 37: 1060-1064.
10. Kim BS, Knupp M, Zwicky L, Lee JW, Hintermann B (2010) Total ankle replacement in association with hindfoot fusion: Outcome and complications. J Bone Joint Surg Br 92:1540-1547 .
11. Clough TM, Ring J. Total ankle arthroplasty. Bone Joint J. 2021 Apr; 103-B(4):696-703.
12. Jeffrey LS, Niall SA, Ethan FJ, MaCalus HV, Christine SM, et al. (2015) Investigating the relationship between ankle arthrodesis and adjacent-joint arthritis in the hindfoot: a systematic review. J Bone Joint Surg Am 97: 513-520.
13. Travis JD, David W, Emily NV, Kamran SH, Andrew EF, et al. (2017) Hindfoot arthritis progression and arthrodesis risk after total ankle replacement. Foot Ankle Int 38: 1183-1187.
14. Marc S, Nicola K, Chen W, Lukas Z, Christine S, et al. (2019) Secondary subtalar joint osteoarthritis following total ankle replacement. Foot Ankle Int 40: 1122-1128.
15. Federico GU, Camilla M , Cristian I, Luigi M, Christopher EG (2017) Tibial slope in total ankle arthroplasty: Anterior or lateral approach. Foot Ankle Sur 23: 84-88.
16. George JD, Todd AD, Brandon MS, Robert L (2017) Perioperative complications and initial alignment of lateral approach total ankle arthroplasty. J Foot Ankle Surg 56: 996–1000.
17. Myerson MS, Kenneth M (2023) Perioperative complications of total ankle arthroplasty. Foot Ankle Int 24: 17-21.
18. Andrew DE, Thomas SR (2017) Anterior incision offloading for primary and revision total ankle replacement: A comparative analysis of two techniques. Open Orthop J 11: 678-686.
19. Christopher EA, Karen KE, Erwin B, Peter B, Paul C (2006) Angiosomes of the foot and ankle and clinical implications for limb salvage: reconstruction, incisions, and revascularization. Plast Reconstr Surg 117: 261-293.
20. Joshua TN, Chamnanni R, Marc PA, Phinit P, John F (2014) Risks to the blood supply of the talus with four methods of total ankle arthroplasty: a cadaveric injection study. J Bone Joint Surg Am 96: 395-402.
21. Alexej B, Clayton BC, Albert BH, Charles SL, Jeremy G (2018) Early clinical and radiographic outcomes of trabecular metal total ankle replacement using a transfibular approach. J Bone Joint Surg Am 100: 505-515.
22. Federico GU, Camilla M, Francesco G, Cristian I, Venus V, et al. (2019) Clinical and radiological outcomes of transfibular total ankle arthroplasty. Foot Ankle Int 40: 24-33.
23. Alberto B, Nicolò M, Mohammad H, Jacopo F, Carlo M, et al.(2019) Early clinical and radiological evaluation in patients with total ankle replacement performed by lateral approach and peroneal osteotomy. BMC Musculoskelet Disord 20:132-135.
24. Kurt HJ, Zabrina SM, Eric F, Jeffrey J (2016) Slovenkai MP. Salto talaris total ankle arthroplasty: Clinical results at a mean of 5.2 years in 78 patients treated by a single surgeon. J Bone Joint Surg Am 98: 2036–2046.
25. James NA, Adam CM, Mark EE, Chad C (2012) Intermediate to long-term outcomes of the STAR total ankle replacement: the patient perspective. J Bone Joint Surg Am 94: 43-48.
26. Diezhandino A, Vacas Sánchez E, Diaz Fernandez R, Vilá Y RJ (2023) Results of transfibular total ankle arthroplasty. A series of 50 implants. J Foot Ankle Surg 62: 671-675.
27. Stadler C, Stöbich M, Ruhs B, Kaufmann C, Pisecky L,et al (2022) Intermediate to long-term clinical outcomes and survival analysis of the Salto mobile bearing total ankle prothesis. Arch Orthop Trauma Surg 142: 3697-3704.