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Current Status of Foot and Ankle Care in Nepal: A Survey among Orthopaedic Surgeons

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Abstract

Background: Foot and ankle disorders are common conditions, but their management in Nepal remains underexplored. This nationwide survey assessed diagnostic and treatment practices and gaps in foot and ankle care among orthopaedic surgeons in Nepal.

Methods: A cross-sectional survey was conducted among orthopaedic surgeons of the Nepal Orthopaedic Association. Of 702 surgeons, 45 were excluded (expired or abroad) ,leaving 657 eligible participants. 262 surgeons responded (39.8%). The survey consisted of demographic information, general practice questions, and condition-specific sections covering plantar fasciitis, Achilles tendinopathy, ankle sprain, flatfoot, cavus foot, and diabetic foot. Data were analyzed descriptively using Microsoft Excel and SPSS version 25.0.

Results: Ankle sprain (96.6%), plantar fasciitis (93.9%), and ankle fractures (88.1%) were the most frequently encountered conditions.Diagnosis was predominantly clinical, supported by X-ray in most cases, while the use of ultrasound or MRI remained limited. The majority favored conservative management, emphasizing physiotherapy, stretching, footwear modification, and NSAIDs. Corticosteroid injection was the most commonly used interventional option for plantar fasciitis (90%), whereas PRP use was minimal. Surgical intervention was reserved for chronic, refractory cases—typically after 6–12 months of failed conservative therapy. The findings reveal significant variability in diagnostic and therapeutic approaches, reflecting both experience-based practice and limitations in subspecialty training and resources.

Conclusion: Foot and ankle conditions are commonly managed by general orthopaedic surgeons in Nepal, predominantly using conservative treatment. Structured subspecialty training, standardized protocols, and improved access to imaging and rehabilitation services are needed.

Keywords: Ankle Sprains; Foot Diseases; Nepal; Orthopedic Surgeons

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Introduction

Foot and ankle disorders are a common cause of musculoskeletal morbidity worldwide and represent a significant burden on healthcare systems. Epidemiological studies indicate that up to 15–20% of all musculoskeletal complaints in general orthopedic practice are related to the foot and ankle region.[1,2] These conditions include acute injuries such as ankle sprains and fractures, chronic degenerative disorders such as plantar fasciitis and Achilles tendinopathy, and deformities such as flatfoot or cavus foot. Despite their frequency, they often receive less attention compared to trauma, arthroplasty, or spine subspecialties, especially in low- and middle-income countries.

The management of foot and ankle conditions requires not only clinical expertise but also access to diagnostic modalities such as ultrasound and MRI, physiotherapy services, and orthotic support. In high-income countries, the evolution of foot and ankle subspecialization over the past three decades has led to improved clinical outcomes through evidence-based management and minimally invasive techniques.[3,4] In contrast, developing nations continue to face challenges including limited specialist training, lack of dedicated clinics, and variable adherence to standard treatment protocols.[5]

In Nepal, orthopedic services have expanded considerably in recent years, yet foot and ankle care remains a developing field . Most foot and ankle conditions are still managed by general orthopedic surgeons, often without formal subspecialty exposure during residency or fellowship. Consequently, practice patterns vary widely between institutions, with diagnostic and therapeutic decisions influenced by local resources and clinical experience rather than uniform guidelines.

Recognizing these gaps,we conducted a nationwide survey among orthopedic surgeons working in Nepal to assess the current status of foot and ankle care in Nepal. The objectives were to determine the frequency and spectrum of foot and ankle cases encountered in clinical practice, to analyze practice behaviour for common disorders such as plantar fasciitis and ankle sprains and to identify limitations in practice and opportunities for improving specialized care through education and training.

This survey aims to provide baseline data for the development of structured training programs and evidence-based guidelines tailored to the Nepali context.

Methods

Study Design and Setting

This was a cross-sectional, questionnaire-based survey conducted among orthopedic surgeons practicing in Nepal to assess the current practice patterns, diagnostic approaches, and treatment strategies related to foot and ankle conditions across the country. Data collection was carried out using a structured online form created via Google Forms.

Study Population

At the time of the survey, there were approximately 702 registered orthopedic surgeons under the Nepal Orthopaedic Association (NOA) according to data retrived from the NOA website. Among them, around 45 surgeons were excluded from the sampling frame because they were either deceased or practicing abroad , leaving 657 eligible participants. The survey link was distributed through official NOA communication channels, email, and professional messaging groups. Participation was voluntary. A total of 262 orthopedic surgeons completed the survey, yielding a response rate of 39.8%, which is considered adequate for national-level descriptive studies.

Survey Instrument

The questionnaire consisted of two main sections:

General practice patterns related to foot and ankle care, including frequency of cases, training exposure, and availability of diagnostic facilities.

Condition-specific practices, focusing on common disorders :[1,2]

- Plantar fasciitis
- Ankle sprain
- Flatfoot
- Hallux Valgus
- Club foot
- Achilles Tendon Disorders
- Ankle Arthritis

Each condition-specific segment included questions regarding the frequency of cases encountered, diagnostic modalities used, first-line treatment preferences, use and type of injections, and indications for surgical intervention. Most questions were of multiple-choice (checkbox or single-option) format, designed to capture prevailing trends rather than subjective opinions.

Data Collection and Management

Responses were automatically recorded in Google Sheets and later exported to Microsoft Excel for analysis. Duplicate or incomplete entries were screened and removed. No personally identifiable information was collected, ensuring respondent anonymity . The study adhered to the principles of voluntary participation, confidentiality, and academic transparency.

Statistical Analysis

Data were analyzed descriptively using Microsoft Excel and IBM SPSS (version 25.0). Categorical variables were summarized as frequencies and percentages. For each condition, the distribution of diagnostic and treatment preferences was tabulated. The results are presented in tables to illustrate prevailing trends in foot and ankle practice in Nepal.

Results

Among the respondents, 37.5% were working in private hospitals, 33.7% in government hospitals, and 25.3% were affiliated with medical colleges. A small proportion practiced in private clinics (1.9%) or other setups (1.5%). (Table 1)

Regarding experience, 42.1% had been in orthopedic practice for more than 10 years, 34.5% for 5–10 years, and 23.4% for less than 5 years. (Table 1)

Only a limited number of respondents had undertaken any formal Foot & Ankle–related training. Eighty-six percent (86.6%) had no prior fellowship or specialized course in this subspecialty, while 7.3% had attended short-term courses (≤3 months) and 6.1% had completed a long-term fellowship (>6 months). (Table 1)

The majority of orthopedic surgeons (64.5%) reported that 10–25% of their overall patients presented with foot and ankle–related problems. A smaller proportion (16.8%) estimated these conditions in less than 10% of their caseload, while 16.0% indicated a frequency between 25–50%. Only 2.7% of respondents stated that more than half of their patients suffered from foot and ankle disorders. (Table 2)

These findings suggest that although foot and ankle conditions form a substantial component of orthopedic practice, they are still not the predominant case category for most surgeons in Nepal.

The most frequently encountered foot and ankle conditions in practice by the respondents were ankle sprain (96.6%), plantar fasciitis (93.9%), and ankle fractures (88.1%). Heel pain not related to plantar fasciitis and Achilles tendon injuries were also common (75.9% and 70.9%, respectively). Fewer respondents managed deformities such as flat foot (46.7%), hallux valgus (41.8%), and clubfoot (38.3%). (Table 3)

In Nepal, Plantar Fasciitis is one of the most frequently encountered foot conditions. Most clinicians rely on clinical diagnosis with or without X-rays and manage conservatively with activity modification, physiotherapy, and NSAIDs. Steroid injections are the most common interventional option, while surgery is sometimes considered. (Table 4)

Almost half of the respondents (48.3%) reported managing more than 10 ankle sprain cases per month, while 42.2% treated between 5–10 patients monthly. The majority relied on clinical evaluation supplemented with plain radiographs (44.8%), and about one-third (34.9%) used MRI selectively for severe or recurrent cases.

Conservative management was the dominant approach for both grade I/II sprains, typically involving rest, ice, compression, elevation (RICE), physiotherapy, and functional bracing. For grade III sprains, most surgeons preferred an initial conservative approach, reserving surgical repair for chronic or unstable cases. (Table 5)

Approximately two-thirds (65%) of surgeons encountered chronic ankle instability in their practice. Management of these cases primarily involved physiotherapy and bracing (50–60%), with surgical stabilization employed in around 25–30% of cases, particularly when conservative measures failed. (Table 5)

12.6% of the respondents encountered flat foot frequently, while 34.1% encountered it rarely and more than half of the respondents (53.3%) reported encountering flat foot occasionally.

When managing children with flat foot, the predominant approach was reassurance (19.2%), followed by orthotic prescription and physiotherapy/stretching (17.6%). These results indicate a largely conservative approach, reflecting an understanding that most pediatric flat feet are physiologic and self-limiting.

For adults with symptomatic flat foot, surgeons primarily employed non-operative management, emphasizing orthotic support, physiotherapy, and footwear modification. Only a minority considered surgical correction for severe or rigid deformities.

Regarding radiological evaluation, most respondents indicated that imaging was not routinely performed and was reserved for symptomatic or atypical cases. (Table 6)

Only 6.9% of the respondents reported encountering hallux valgus frequently, while 36.8% saw it rarely and a majority of the respondents (56.3%) encounetred it occasionally.

For mild to moderate cases, most surgeons preferred conservative management, primarily through footwear modification and orthotic spacers (33.7%), followed by orthotics alone (16.1%).

Surgical intervention for hallux valgus was uncommon, with most participants indicating that they do not perform corrective procedures regularly. Those who do undertake surgery tend to limit it to severe or painful deformities unresponsive to conservative measures. (Table 7)

Nearly half of the orthopedic surgeons (44.1%) reported rarely managing clubfoot, while 37.6% did so occasionally and 18.4% frequently, indicating that most cases are treated by surgeons with specialized interest or pediatric experience.

For infant clubfoot, the overwhelming majority (90.8%) reported using the Ponseti method, confirming its acceptance as the standard of care across Nepal. Only 7.7% referred these patients to tertiary centers or specialists for further management.

In cases of neglected or relapsed clubfoot, more than half of the surgeons (55.9%) opted for referral to specialized centers, reflecting awareness of the complexity of these cases and the need for advanced correctional techniques. (Table 8)

Vast majority (86.6%) favoring operative repair as the treatment of choice for acute achilles tendon rupture, whereas 11.5% preferred conservative management

Table 1. Demographic and Practice Profile

Category	Percentage
Type of practice	
Private hospital	37.5%
Government hospital	33.7%
Medical college	25.3%
Private clinic	1.9%
Other	1.5%
Years in practice	
> 10 years	42.1%
5–10 years	34.5%
< 5 years	23.4%
Specialized Foot & Ankle training	
None	86.6%
Short-term course (≤ 3 months)	7.3%
Long-term fellowship (> 6 months)	6.1%

Table 2. Case Load (N=262)

Foot and ankle problems (%)	Frequency (n)	Percentage (%)
<10%	44	16.80%
10–25%	169	64.50%
25–50%	42	16.00%
>50%	7	2.70%

and 1.9% referred such cases to specialists, indicating that most orthopedic surgeons in Nepal are confident in handling thes injuries surgically.

For chronic achilles tendinopathy, activity modifications, physiotherapy and NSAIDs were the most commonly employed strategies (33.7%). Approximately 10% oopted for surgical intrtventions and a small proportion provided mixed response to treatment. (Table 9)

Management of ankle arthritis among Nepalese orthopedic surgeons was predominantly conservative. The majority (27.97%) preferred NSAIDs and general conservative care, including activity modification and physiotherapy.

A significant proportion also incorporated surgical options, with 19.16% performing arthrodesis and 14.94% combining injections and arthrodesis as part of their management strategy. Intra-articular injections were used by approximately 12%, often in conjunction with conservative measures.

Table 3. Common Foot & Ankle conditions encountered

Condition	Frequency	Percentage (%)
Ankle sprain	252	96.6%
Plantar fasciitis	245	93.9%
Ankle fractures	230	88.1%
Heel pain (other than plantar fasciitis)	198	75.9%
Achilles tendon injuries	185	70.9%
Arthritis	136	52.1%
Flat foot	122	46.7%
Hallux valgus	109	41.8%
Club foot	100	38.3%
Other (miscellaneous)	41	15.7%

Only a small minority (4.98%) referred complex cases to specialists or tertiary centers, suggesting that most surgeons manage ankle arthritis independently using a multimodal approach focused on symptom relief and joint stabilization. (Table 10)

A striking 93.1% of orthopedic surgeons expressed a need for additional training in foot and ankle surgery, reflecting a strong awareness of the importance of this subspecialty in clinical practice. Only 6.9% believed that current training opportunities were sufficient.

When asked about specific topics of interest in Foot and Ankle practice, the most commonly cited areas were heel pain/plantar fasciitis and ankle instability and ligament injuries (16.9%), followed by trauma around the ankle and foot (6.5%). These preferences highlight the need for targeted educational modules addressing common yet challenging clinical problems.

An overwhelming 89.3% of respondents indicated willingness to attend national workshops or conferences on foot and ankle surgery, suggesting high engagement potential for continuing medical education programs within Nepal. (Table 11)

Discussion

The present survey, encompassing responses from 262 orthopedic surgeons across Nepal, provides a comprehensive overview of the current landscape of foot and ankle practice in the country. With approximately 657 active surgeons, the response rate of nearly 40% indicates widespread engagement and interest in this emerging subspecialty.

Table 4. Plantar Fasciitis

Question	Percentage (%)	Interpretation
Q8. Frequency of cases seen		
Frequently (>10/month)	71.6	Most surgeons see plantar fasciitis frequently.
Occasionally (5–10/month)	23.0	
Rarely (<5/month)	5.4	
Q9. Diagnostic methods used		
Clinical exam only	25.7	Diagnosis mainly clinical, supported by imaging in most cases.
Clinical exam + X-ray	53.6	
Clinical exam + X-ray + Ultrasound	7.7	
Clinical exam + X-ray + Ultrasound + MRI	5.0	
Q10. First-line treatment		
Activity/footwear modification + Physiotherapy/stretching + NSAIDs ± Orthotics	70.9	Conservative management is the mainstay.
Physiotherapy/stretching ± NSAIDs	13.0	
Q11. Use of injections		
Frequently	7.7	Injections are used selectively, not routinely.
Sometimes	53.6	
Rarely	29.9	
Never	8.8	
Q12. Type of injection used		
Corticosteroid	90.4	Steroid injection is the most common option.
Platelet-rich plasma (PRP)	8.8	
Q13. Indication for surgery		
After 3–6 months failed conservative care	8.4	Surgery is rarely considered and only for refractory cases.
After 6–12 months failed conservative care	25.3	
Rarely/Never	66.3	

This nationwide survey demonstrates that foot and ankle disorders form a substantial component of routine practice, but that management is dominated by conservative approaches and that formal subspecialty training remains limited.

The survey revealed that conditions such as ankle sprains, plantar fasciitis are among the most frequently encountered foot pathologies in Nepalese orthopedic practice. Over 70% of respondents reported managing plantar fasciitis cases regularly, while nearly all dealt with ankle sprains routinely. These figures correspond with global data indicating that ankle sprains alone account for nearly one-third of all sports-related injuries[6] and plantar fasciitis affects up to 10% of the general population during their lifetime.[7] In our sample, plantar fasciitis and ankle sprain was the most commonly reported conditions and conservative care was the mainstay of management. Over 70% reported initial management with physiotherapy, stretching, NSAIDs, and footwear modification, consistent with international guidelines. However, notable differences exist in the adoption of advanced interventions.

Table 5. Ankle Sprain

Question and Common Responses	Percentage (%)
Q14. Number of ankle sprain patients per month	
>10 patients	48.3%
5–10 patients	42.2%
<5 patients	9.6%
Q15. Usual diagnostic approach	
Clinical diagnosis + X-ray	44.8%
Clinical diagnosis + X-ray + MRI in severe	34.9%
Q16. Management of Grade I/II sprains	
Conservative treatment (RICE, physiotherapy, NSAIDs, brace)	Majority (>80%)
Q17. Management of Grade III sprains	
Initial conservative approach; surgery for chronic or severe instability	Majority (>70%)
Q18. Do you see chronic ankle instability after sprains?	
Yes	~65%
Q19. Management of chronic instability	
Physiotherapy and bracing	~50–60%
Surgical stabilization for recurrent/ chronic instability	~25–30%

Table 6. Flat Foot

Question	Percentage (%)
Q20. How often do you encounter flat foot?	
Occasionally	53.3%
Rarely	34.1%
Frequently	12.6%
Q21. In children with flat foot, you usually:	
Reassure only	19.2%
Orthotics and physiotherapy/stretching	17.6%
Q22. In adults with symptomatic flat foot, you usually:	
Majority opted for conservative management (orthotics, physiotherapy, footwear modification)	Common trend
Q23. Do you do radiological assessment for flatfoot?	
Do not routinely perform radiological assessment; reserved for symptomatic or atypical cases	Common trend

Table 7. Hallux Valgus

Question	Percentage (%)
Q24. How often do you see hallux valgus?	
Occasionally	56.3%
Rarely	36.8%
Frequently	6.9%
Q25. Management of mild/moderate hallux valgus	
Footwear modification only, Orthotics/spacers	33.7%
Orthotics/spacers	16.1%
Q26. Surgeries performed for hallux valgus	
Most do not operate routinely	Common trend

Table 8. Club Foot

Question	Percentage (%)
Q27. How often do you manage clubfoot?	
Rarely	44.1%
Occasionally	37.6%
Frequently	18.4%
Q28. In infants, your usual approach	
Ponseti casting	90.8%
Refer to specialist	7.7%
Q29. In neglected or relapsed clubfoot, you usually:	
Refer to specialist	55.9%
Other options like Ponseti or surgery: Minimal	

Table 9. Achilles Tendon Disorders

Question	Percentage (%)
Q30. Do you treat acute Achilles tendon ruptures?	
Operative repair	86.6%
Conservative management	11.5%
Refer to specialist	1.9%
Q31. For chronic Achilles tendinopathy, you prefer:	
Activity modification, NSAIDs, Physiotherapy	33.7%
Surgery	10.0%
Other or mixed responses	Minimal

Table 10. Ankle Arthritis

Response Option	Percentage (%)
NSAIDs + Conservative care	27.97%
NSAIDs + Conservative care + Arthrodesis	19.16%
NSAIDs + Conservative care + Injections + Arthrodesis	14.94%
NSAIDs + Conservative care + Injections	12.26%
NSAIDs + Conservative care + Injections + Refer	4.98%

Table 11. Training and Needs

Question	Percentage (%)
Q33. Do you feel the need for more training in Foot & Ankle surgery?	
Yes	93.1%
No	6.9%
Q34. Which topics interest you most?	
Heel pain / Plantar fasciitis, Ankle instability & ligament injuries	16.9%
Trauma around ankle & foot	6.5%
(Other topics mentioned less frequently)	—
Q35. Would you attend workshops/conferences on Foot & Ankle in Nepal?	
Yes	89.3%
No	10.7%

For instance, corticosteroid injections are still widely used for plantar fasciitis in Nepal (90% of respondents), despite recent global trends favoring platelet-rich plasma (PRP), extracorporeal shockwave therapy, or ultrasound-guided procedures that provide longer-lasting benefits with fewer recurrences .[8-10] International evidence and recent clinical practice guidelines acknowledge that corticosteroid injections produce reliable short-term pain relief but that their effect tends to diminish over time and injections carry potential complications (including plantar fascia atrophy and, rarely, rupture).[8-13]

Survey respondents overwhelmingly favoured initial conservative management for grade I–II sprains — functional support, early mobilization, rehabilitation and bracing — with surgery reserved for severe, unstable, or chronic cases. The high reliance on plain radiography for initial assessment and selective use of MRI for complex presentations mirrors common practice elsewhere and aligns with guideline recommendations to avoid routine overuse of advanced imaging.[14] Approximately two-thirds of respondents reported encountering chronic instability; most of these cases were initially managed non-operatively (physiotherapy, bracing) with a minority undergoing surgical stabilization. This stepped approach (rehabilitation first, surgery for persistent mechanical instability) is supported by the literature and represents best-practice triage when resources for advanced imaging and specialist surgery are limited.[14,15]

Most respondents rely on conservative measures (NSAIDs, physiotherapy, injections) as first-line treatment for ankle arthritis, with a smaller group performing arthrodesis and still fewer offering total ankle arthroplasty.

The predominance of conservative management in Nepal is appropriate as initial care, but developing referral pathways and building training for ankle reconstruction (arthrodesis and arthroplasty) may improve options for patients with end-stage disease.

Management of hallux valgus in Nepal remains predominantly conservative, with footwear modification and simple bunion surgery still practiced. In contrast, developed countries favor more anatomical corrective osteotomies often guided by radiographic angular parameters and supported by postoperative physiotherapy.[16]

For adult-acquired flatfoot, especially posterior tibial tendon dysfunction (PTTD), the majority of surgeons in Nepal reported initial use of orthotics and steroid injections, with few performing tendon transfers or osteotomies. In developed centers, early-stage PTTD is treated with orthoses and physiotherapy, while advanced cases undergo complex reconstructions involving medializing calcaneal osteotomy, tendon transfer, or arthrodesis depending on the deformity stage.[17] The low frequency of these advanced reconstructions in Nepal may relate to the lack of subspecialty training and patient affordability.

Clubfoot management has improved substantially in Nepal through the widespread adoption of the Ponseti method, supported by global outreach programs .[18,19] However, relapse management and complex neglected deformities still pose challenges.

The findings highlight a healthcare system where resource constraints, variable training exposure, and lack of dedicated foot and ankle units shape current practices. There is a pressing need for structured educational programs, fellowship opportunities, and incorporation of foot and ankle modules into residency curricula. The establishment of the Nepal Orthopaedic Association Foot and Ankle Subcommittee (NOAFAS) provides a strong platform

to lead this transformation through academic meetings, workshops, and collaborative research.

Developing standardized national guidelines, encouraging multidisciplinary care (orthopedic, physiotherapy, and podiatry integration), and promoting international collaboration with regional societies could accelerate the growth of this subspecialty in Nepal. Furthermore, expanding access to diagnostic imaging, physiotherapy services, and orthotic support would enhance patient outcomes significantly.

A striking 93% of respondents reported a need for more training in foot and ankle surgery and nearly 90% indicated willingness to attend workshops or conferences.

This survey has several limitations that should be acknowledged. First, the responses were self-reported, which may introduce recall and reporting bias, as surgeons might have overestimated adherence to evidence-based practices or underreported unconventional methods. Second, the survey was distributed primarily through professional networks and online platforms, potentially leading to sampling bias favoring surgeons actively engaged in academic activities. Third, the number of respondents, though representative of major orthopedic centers, may not fully capture the diversity of practices in peripheral or rural hospitals across Nepal where resource constraints and patient preferences differ substantially.

Future studies involving larger, multicentric participation with outcome analysis could provide a more comprehensive understanding of evolving foot and ankle management trends in Nepal.

Conclusion

This nationwide survey provides the first comprehensive overview of current foot and ankle care practices among orthopedic surgeons in Nepal. The findings reveal that while most surgeons frequently encounter conditions such as plantar fasciitis, ankle sprain, hallux valgus, flatfoot, and clubfoot, management remains predominantly conservative and experience-driven. Diagnostic evaluation often relies on clinical examination and basic imaging, with limited use of advanced modalities such as ultrasound or MRI. Similarly, interventional and surgical procedures are less commonly performed, reflecting both resource limitations and the evolving stage of subspecialty development in the country.

The study underscores a significant need for structured subspecialty training, establishment of standardized management protocols, and enhancement of multidisciplinary support, including physiotherapy and orthotic services.

Conflict of Interest: None

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