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## International Perspectives

# Indian Foot and Ankle Scenario

Rajiv Shah, MS

**Abstract:** *Huge population of aggressively developing country like India is catered by more than 20,000 orthopedic surgeons but with very few dedicated foot & ankle surgeons. This area of orthopedics has not yet established its place as a specialty of medicine. Most of newer treatment concepts & methodologies are yet to establish its place in India in spite of huge suffering population. Challenges are late presentations, delayed diagnosis, neglected cases, malunions, complex deformities & diabetic foot issues. Commonly seen forefoot, midfoot & hindfoot problems in India & their routine care is discussed. Article also addresses very tough but interesting journey of first foot & ankle surgeon of India & story of rise & fall of first Indian foot & ankle centre of excellence. Contribution in form of educational efforts & deep market penetration is deemed from west to uplift Indian foot & ankle scenario which is summed up as: lack of awareness, opportunity and negligence.*

**Key words:** Footwear alterations, orthotics, Foot lab, Foot school

It was not a big “wow” but a frustrating “what” with which I was welcomed by doctors’ fraternity, when I shared my idea of diversification into foot and ankle orthopaedics with them! Five years down the line, the situation has remained

unchanged. People still ask the same question: “How come you thought about foot and ankle?”

I can sum up this subject in just 3 words: lack of awareness, opportunity, and negligence!

### Magnitude of the Problem

The Indian orthopaedic surgeon population is more than 15 000 to serve a population of 1200 million. Of these, only 3 to 4 orthopaedic surgeons have diversified to practice foot and ankle orthopaedics. The Indian Foot and Ankle Society essentially focuses on clubfoot and pediatric orthopaedics and consists of less than 2% of the total orthopaedic population. The annual general meeting of the said organization is attended by 80 to 100 members!

The average orthopaedic surgeon does come across a large number of foot and ankle problem cases, but for the most part is unaware of the availability of treatment modalities for these problems. Patients are made to suffer for ignorance on the part of the doctor population about availability of latest treatment modalities. It is through the doctors’ population that society has a message that most of the foot and ankle

conditions, such as flatfoot, rheumatoid foot, Charcot, heel pain, have no remedies! There is no question of availability of new-generation implants such as fragment-specific locking compression plates for foot and ankle, area-specific fusion implants, and arthroplasty implants. The Indian population has evolved from walking barefoot to using fancy Western-style footwear, but there is still lack of knowledge about correct footwear. Many youngsters are now pursuing a career

“The average orthopaedic surgeon does come across a large number of foot and ankle problem cases, but for the most part is unaware of the availability of treatment modalities for these problems.”

in sports but are still unaware of common foot and ankle problems in sports and the availability of solutions. During our checkup camps for cricketers from 3 leading cricket associations, we noticed that 100% of cricketers were unaware about selection criteria for correct footwear.

This has ultimately led to a huge number of the population suffering from untreated or maltreated foot and ankle

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**Figure 1.**

Malunited Lisfranc injury with malunited calcaneus fracture in the same patient.



problems in India. We have an epidemic of malunited calcaneum, missed Lisfranc, and foot and ankle deformities (Figure 1). India is a diabetic capital with 40 million sufferers with 80 million feet. The traditional care for diabetic neuropathic nonhealing ulcer is amputation in 25% to 30% of cases!

With a booming economy, the spending capability of the average Indian has increased over the years. The Indian population has one of the highest private health care spending in the world—to the tune of 85%. The insurance sector has entered the health care market in a big way. There is a craze for blindly opting for foreign health care solutions and health care products in India. The field of medicine, in general, has a bleak outlook in the neighboring countries, such as Sri Lanka, Pakistan, Bangladesh, Burma, Nepal, Maldives, and Bhutan. They rely a lot on Indian doctors to provide them with newer solutions for their health care issues. Many medical tourists travel to India from neighboring countries all round the year. Most of the leading Indian health care providers,

such as Apollo and Fortis, have their satellite centers in these neighboring countries, which make heavy profits.

### Commonly Seen Forefoot Problems and Their Care

The commonly seen forefoot problems in India include deformities of greater and lesser toes and metatarsalgias. Problems of hallux are on the rise because of blind followers of Western fancy footwear. Gouty and rheumatoid arthritis are also quite common. People opt to walk barefoot for these forefoot issues rather than having surgical care. Rheumatologists and orthopaedists are more interested in getting the knee and hip replaced rather than tackling the root cause. The well-to-do and educated population with forefoot problems continues to take analgesics. Patients are not informed about availability of corrective modalities for claw toes, hammer toes, hallux valgus, and metatarsalgias. Corns and callosities are also quite common. Commercially available over-the-counter corn tapes and excision

of corns is a common remedy. Pressure studies and solutions are almost nonexistent. Neglected or conservatively treated metatarsal fractures result in a large number of metatarsalgias. Cases are often at the mercy of an orthopaedist who treats them for years together with footwear alterations only. Corrective and offloading surgeries are yet to find favor with medicos.

### Commonly Seen Midfoot Problems and Their Care

Common midfoot issues are arthritis of the midfoot joints and flatfeet. Every physiological pediatric flatfoot gets footwear alterations, and adolescent and adult flatfeet are undiagnosed and untreated. I have operated on good a number of acquired adult flatfoot deformity cases where someone has just done a transfer of flexor digitorum longus without medializing sliding calcaneal osteotomy! Most adult acquired flatfeet end up in arthritis of the joints to be treated by in situ triple arthrodesis without correction of deformities. Midfoot arthritis in most cases is due to missed or poorly treated Lisfranc injuries. The typical surgical option offered is “half cheilectomy,” just an excision of offending bony spur.

### Commonly Seen Hindfoot Problems and Their Care

In trauma, we have many malunited calcaneal fractures. Most of the calcaneal fractures are treated conservatively for fear of complications resulting from open reduction. The resultant arthritic population ends up getting mostly a triple arthrodesis! Ankle, pilon, and talus fractures are also common but get treatment as per recent principles in trauma care. Heel pain is the most frequently encountered clinical entity. Recent noninvasive modalities such as shockwave therapy and radiofrequency coblation are yet to establish themselves as modes of treatment. The number of steroid injections surpasses modalities such as physiotherapy and orthotics. Surgery for heel pain is still in its infancy. Posterior heel pain problem cases are many, but they get

only prolonged conservative care. Plastic surgeons earn more money treating wound complications from inadvertent attempts of surgical procedures done for posterior heel issues. Arthroscopic solutions for ankle problems are evolving. Total ankle replacement implants are as yet unavailable though there is a demand and awareness for replacement surgery in general. Total ankle replacement surgery would surely be a national event in India whenever it happens.

### **Present Diagnostic Modalities**

The diagnostic modalities include all named blood investigations plus X-rays, computed tomography scan and magnetic resonance imaging (MRI). X-rays typically are taken in non-weight-bearing postures. Computed tomography and MRI are quite frequently used. Dedicated foot and ankle mini MRI machines are not available. Foot lab is a newer concept floated by our group. Typical common offerings to diabetics by the foot lab are biothesiometer, Doppler, and Harris mat examinations. Foot scan is a new gadget whose utility is yet to be tested. Musculoskeletal ultrasonography is gaining in popularity because of its easy availability and cost effectiveness.

### **Gap Analysis**

#### **Awareness and Education**

Awareness about understanding and analysis of foot and ankle problems among the orthopaedic population is the need of the day. They also need to be aware of the latest treatment methods with principles and reasoning. Educational courses should be conducted round the year and across all countries of the South Asian Association for Regional Cooperation (SAARC). Modules of interactive hands-on training workshops in addition to continuing medical education program should help practicing orthopaedic surgeons. Awareness of foot and ankle as a specialty of medicine must percolate across the medical fraternity to establish a correct referral system. The society at large also needs to be educated about the myths and realities with regard

to foot and ankle orthopedics. Diagnostic modalities such as ultrasonography need to be promoted. Problems of Third World are delay in diagnosis, inadequate and improper treatments, and lack of follow-up, in addition to quackery and economical issues. Education should be tailor made, cost-effective, and must encourage development of innovative solutions.

#### **Orthotics and Implants**

Companies from the West should enter the market fast with their quality research products. The Indian population prefers quality Western products has a mindset to pay for the same. These products should be placed at such a pricing as to be affordable to the common populace. The idea should be to have wider client base to get quicker return on investments. Cost-effective research-based solutions promoted to the masses via key opinion leaders will abolish fear of copying. The way multinational companies have opened up joint replacement market for knee and hip, ankle replacement has a very easy way ahead in gaining acceptance. There is a huge untapped market for orthotics. The Indian Food and Drug Administration regulations are manufacturer friendly.

### **My Journey**

My love and affection toward the subject of foot and ankle was the driving force for me to diversify as first genuine foot and ankle surgeon of India even after 17 years of my decent general orthopaedic practice. Though I have been creating a foot and ankle niche throughout my career, I hardly had a learning opportunity except through self-made efforts and by trial and error. There was nobody to teach, guide, or train. Dr Nikesh Shah and Dr Malhar Dave joined my mission. We had great academic sessions together with several hands-on dissection sessions for 6 consecutive months. We could then manage to get observing fellowships for the 3 of us at various centers in the United States. During this time period, we had already formed the "articles of association" and had launched our Web site launched. The

2 Web sites, <http://www.footankleindia.com> and <http://www.footankle.in>, were first of their kind from Asia. Our knowledge was sharpened by our mentors, Dr Greg Berlet, Dr Thomas Lee, Dr Judiet, and Dr Anand Vora, all from the United States. We announced our new birth as "foot and ankle surgeons." Soon we launched a center of excellence for foot and ankle care. This journey is still on with a mission to establish foot and ankle as a specialty of orthopaedics in spite of problems such as lack of awareness and lack of acceptance among colleagues.

### **My Experiments and Experiences**

#### **Regional Center of Excellence**

The first foot and ankle center of excellence set up by us was a complete entity in itself for consultation and diagnosis of all foot and ankle ailments. The center had a consulting suite with attached foot lab equipped with gadgets such as biothesiometer, Doppler, Harris mat, and foot scan. For the first time in India, special devices to obtain weight-bearing X-rays were available at our center. We had opted to operate cases at various bigger set ups. We were also required to put in our efforts in marketing, which were at the cost of our routine orthopaedic practice. We were rejected as foot and ankle experts by orthopaedic surgeons of the local district. Our struggle was not only for existence but also for breaking even financially. It must be admitted that we had no courage to give up our existing decent general orthopaedic practice! We continued both and were unable to give enough time for the foot and ankle center. After a struggle of almost 3 years, we were forced to disintegrate the main center into 3 centers to be run at our own hospitals. Presently, these 3 centers are running independently at 3 different areas of our city, and my dream of setting up such centers across the country remains unfulfilled.

#### **Foot School: A Novel Concept**

The biggest problem faced by us was lack of education and awareness on the subject of foot and ankle, not only among doctors but also among the

**Figure 2.**

Photographs from the foot school.



general population. I developed and nurtured a novel concept called “foot school.” This is an interactive audiovisual classroom session lasting 1 hour 30 minutes, detailing the structure and function of foot and ankle, common diseases of foot and ankle, treatments available for them, and myths and realities surrounding foot and ankle problems. Till date, we have conducted more than 50 such foot schools with number of attendants ranging from 4 to 400! The sessions are mostly held on Sundays and holidays (Figure 2).

### Projects of Social Obligation

The traditional care for foot and ankle problems for diabetics in India is below-knee amputation! Efforts for prevention of the problem are virtually nonexistent. This was not only a challenge but also a social responsibility. Project “Save the Foot” for diabetics is for this noble cause. We conduct camps under this banner, which consist of medical checkups and awareness exhibitions followed by interactive talks on the subject. Mostly these activities are self-funded and so numbers are really small.

Our association as honorary foot and ankle surgeons with a nongovernmental organization running Asia’s largest leprosy inhabitant colony named “Shram Mandir Trust” encouraged us to launch

project “We Walk.” The aim of this project is to make leprosy patients walk on their own feet and to prevent amputations. Till we got involved at Shram Mandir, the traditional treatment for neuropathic foot and ankle in leprosy victims was below-knee amputation. The project aims at early diagnosis, scientific treatment, and prevention of amputations in leprosy victims (Figure 3). The project also aimed to give leprosy patients scientifically designed footwear prepared in-house by cured volunteers. Strong social stigma in India prevents health workers to work for leprosy cases. We had to prepare a dressing team and operation theater assistant’s team from a group of cured volunteers. These teams carried our work of diagnosis and treatment forward. Cured leprosy volunteers were vocationally trained to work as cobblers (Figure 4). They were given extensive training and were provided with equipment for preparation and repairs of scientific footwear in-house. Problems were really compounded with noncompliance to our treatment by sufferers. They suffered from phobia of getting cured and then getting thrown out of Leprosy Township into the outside world, which never accepted them before! Patients used to create deep ulcers out of healing ulcers on their own with knives! For months together,

I was unable to understand reasons of our failures till someone revealed to me the secret of self-inflicted ulcers! It was at the end of 2 painful weeks that I could find a solution to deal with this issue of self-inflicted ulcers. The solution to this issue was formation of a voluntary team called “Children Team.” A team of healthy school children, sons and daughters of suffering leprosy victims, was formed and educated, who in turn educated and appealed to their parents not to go for self-inflicted ulcers and to comply with care offered by us. Rewards were announced for patients curing their ulcers faster. The project then sailed smoothly. The first phase of the project was completed out of our own funding. The second phase was funded by a corporate, whereas the next phases are in hibernation for the want of resources.

### Education

I did notice skepticism toward getting educated by us for foot and ankle problems. We need to learn a lot in foot and ankle orthopaedics to be proficient enough to teach. There was no other way for me but to look at the United States for help. My application to procure a traveling fellowship of the American Orthopaedic Foot and Ankle Society was

**Figure 3.**

Type of nonhealing neuropathic ulcer cases found at the Leprosy Township.

**Figure 4.**

Old- and new-generation footwear produced in-house, during the course of the “We Walk” project.



rejected citing overage as the criterion for disqualification. I still wonder that with my present age of just 6 years in foot and ankle how can I be labeled as overaged? I happened to meet Dr Selene Parekh from the United States at one of the

annual conferences of the Indian Foot and Ankle Society. He was desirous to give back to his parent country, so I took up this opportunity to request him to float a foot and ankle educational model for orthopedic surgeons of India. This

gave birth to the Indo-US foot and ankle courses where US foot and ankle surgeons join hands with their Indian counterparts to educate orthopaedicians on foot and ankle. Till date, 2 such courses have seen the light of the day and the

third is scheduled to be in January 2012. I wish to take up these courses all across India and also to adjoining SAARC countries. I am still not happy with the frequency of these courses, which I feel should exceed from once a year to at least twice a year and should also be linked to advanced overseas short-term foot and ankle fellowship. Funding and frequency are still issues with these courses.

### **How Can the West Contribute?**

My plea to inform the world of foot and ankle surgeons about Indian scenario through some media was well taken up by my teacher and editor of this journal, Dr. Berlet. This, I feel, will be the first step in West's contribution to Third World

foot and ankle. I feel more number of specialized fellowships with flexible rules should be instituted for interested orthopaedic surgeons from the East. An interactive forum for discussion of the problems faced by Indian surgeons should be set on the World Wide Web for ready guidance. The joint meetings with Indian Foot and Ankle Society and joint issues of journal should also be a useful tool to generate quest for research in the subject of foot and ankle among Third World orthopaedicians. Basic hands-on workshops and courses conducted by various Western organizations should follow with availability of advanced instruments, equipments, implants, orthotics in India. A book or publication with surgical demonstrations in a video format focusing on problems of the

foot and ankle in Third World will be of immense help to one and all.

### **Future of Indian Foot and Ankle**

The future appears very bright, and I am fully optimistic for foot and ankle to develop as a specialty of orthopaedics in India sooner or later. Thereafter many young orthopaedic surgeons will have to take up this task to the next level. Our problems are different and so, solutions have to be different, innovative, and also cost-effective. These solutions have to come from the hard work of young Indian orthopaedicians, with help from the West. Let these solutions be the evidence base for the world to adopt and follow. [FAS](#)