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Case Report

Os intermetatarsium may not interfere with metatarsus primus varus deformity correction: A case report

蹠骨不一定妨礙第一蹠骨內翻矯正的病例報告



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ABSTRACT

It has been believed that the correction of metatarsus primus varus (MPV) deformity of hallux valgus foot using nonosteotomy procedures would be compromised by the presence of os intermetatarsium (OI). Therefore, no soft tissue procedure has ever been reported for the correction of MPV deformity of hallux valgus foot.

This is a case report of a female patient with bilateral hallux valgus deformity and also a large OI of her left foot that was corrected, satisfactorily and simultaneously, with a soft tissue technique called syndesmosis procedure, without osteotomy or OI resection. Excellent feet function was observed for 2 years until her last follow-up examination without any symptoms or signs of problems relating to the OI in her left foot.

This case report demonstrated for the first time that OI may not interfere with proper MPV deformity correction because it can be preexisting and X-ray can be misleading.

摘要

在進行拇趾外翻矯正手術，如果有蹠間骨的存在，醫學界一直認為它會阻礙第一蹠骨回復正常的位置。因此，過去總是採用截骨方式，而從未嘗試使用非截骨方法。

本報告是證實一名女士患有雙邊拇趾外翻及同時左足患有蹠間骨的症狀下，可通過軟組織韌帶聯合術，不需進行截骨術或切除蹠間骨，就能順利地將雙腳的問題矯正。在術後兩年檢查當中，她雙腳功能良好，再沒有任何有關她的左足蹠間骨的問題出現。

這病例報告亦是首次表明蹠間骨未必會妨礙用非截骨手術來矯正第一蹠骨內傾斜的情況，因為它可早已存在，以及X光片可能使人產生誤解。

Introduction

Metatarsus primus varus (MPV) is closely associated with the hallux valgus (HV) deformity. It has also been regarded by many as the primary underlying cause of the HV deformity.¹ Certainly, its correction has been the principal objective for HV deformity correction, and it has been mostly achieved through first metatarsal osteotomy procedures.² Nonosteotomy or soft tissue procedures such as the McBride procedure and its modifications have been disfavoured for their usefulness being limited to mild and moderate deformity only.³ Adequate MPV correction by nonosteotomy

techniques would require unobstructed first metatarsal mobility for its realignment throughout valgus shift. Pathologically, the first metatarsal mobility of MPV deformity has not been known to be restricted but contrarily often hypermobile.⁴ However, anatomical variations such as os intermetatarsium (OI) and metatarsal facet at the base of the first metatarsal bone have long been believed to block the usual mobility of the first metatarsal bone and thus hamper its proper realignment without osteotomy,⁵ but such an alleged phenomenon has never been verified with a proven effective nonosteotomy technique such as the syndesmosis procedure. The intermetatarsal cerclage suture technique that is used by the nonosteotomy syndesmosis procedure to realign the first metatarsal bone has been proven effective in correcting not only mild but also severe MPV deformities.^{6,7} Hence, this proven capability

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makes intermetatarsal cerclage suture an ideal technique to investigate if a large OI would obstruct a proper first metatarsal realignment of an MPV deformity or not.

Case Report

A 40-year-old woman had bilateral HV deformity, related bunion pain and metatarsalgia despite the conservative management of wearing wider shoes and metatarsal pad. She also had episodes of sudden loss of balance while walking especially on uneven grounds. She experienced tiredness in her feet easily from daily activities. Her mother had much worse HV deformity than hers but did not want surgical treatment. The patient had worn 2-inch high-heeled shoes to her office for many years but had to stop wearing them several years ago because of increased metatarsalgia and bunion pain. There was no history of any remarkable trauma to her feet. She had felt no difference between her feet or any pain in the midfoot region of her left foot. Physical examination revealed typical appearance of HV deformity of her feet (Figure 1) and mild tenderness over the bunion bump. She had 75° passive dorsiflexion movement of the metatarsophalangeal joint with mild end-point pain, increased mobility of the first metatarsal bone of feet in both horizontal and sagittal



Figure 1. Preoperative standing dorsal-view photo. The feet showed the typical widened and flattened forefoot.



Figure 2. Preoperative plantar-view photo. Both sole showed multiple typical metatarsal calluses associated with hallux valgus feet.

planes, large metatarsal calluses (Figure 2) and moderate flat foot condition. Standing anteroposterior (AP) view X-ray of her feet revealed severe MPV deformities. Her left foot had a large OI coming from the proximal metaphysis of the second metatarsal bone. It appeared almost butting and pushing against the first metatarsal bone. With the large intermetatarsal gap needed to be reduced, there was concern if the first metatarsal bone could be adequately realigned (Figure 3). The exostosis could not be detected in the standing lateral view X-ray (Figure 4). The patient wanted surgical correction of her HV feet because she would like to get rid of disabling pains of her feet and be able to return to regular shoes and a more active life. The soft tissue nonosteotomy syndesmosis procedure was proposed. She gave her consent for this procedure and also for possible resection of the basal bone spur and conversion of her surgery to an osteotomy procedure.

Syndesmosis procedure has been well described,^{6,7} and its details will not be repeated here. However, it is appropriate to mention that the same standard technique was performed for her feet, and there were no remarkable differences noted between them. In essence, the MPV deformity was corrected by tying the

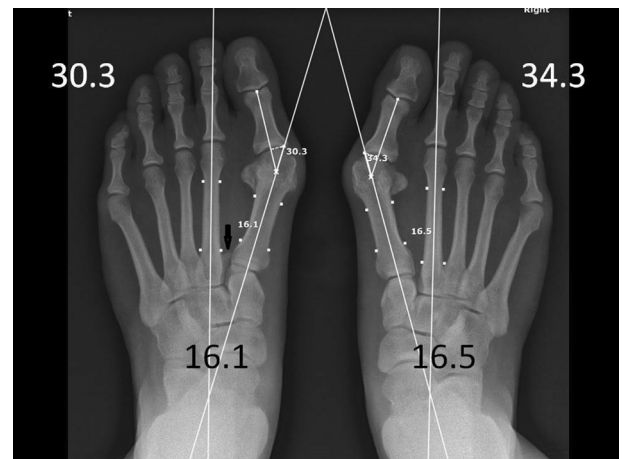


Figure 3. Preoperative standing AP-view X-ray. The feet revealed severe MPV deformities with left intermetatarsal angle (IMA) of 16.1° and right IMA of 16.5°, complete fibular sesamoid dissociation and the large os intermetatarsaleum (black arrow) of the left foot. MPV = metatarsus primus varus.



Figure 4. Standing lateral view X-ray of the left foot. The os intermetatarsaleum could not be seen because of overlapping bones.

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