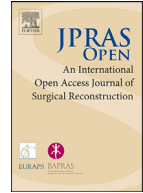




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## Case Report

## Stature seekers: Cosmetic limb lengthening in medical tourism a case report

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## ABSTRACT

This case report details orthopaedic cosmetic surgery tourism, an emerging trend where individuals seek orthopaedic cosmetic procedures abroad. While this practice is increasingly common, it lacks regulation, potentially endangering patients. Factors driving this trend include rising healthcare costs and lengthy waitlists in public healthcare systems. Patients often pursue surgery abroad to save costs, or access specialised procedures not available domestically.

However, complications can arise, necessitating costly management back home. Surgeons may face challenges due to unfamiliarity with overseas care, while patients encounter language barriers and variations in medical standards. This case report highlights a 28-year-old male who underwent bilateral limb lengthening surgery in Turkey, experiencing serious complications.

While existing data on cosmetic tourism mainly focuses on plastic and bariatric surgeries, documentation specific to orthopaedic cases is limited. This report underscores the need for further research and regulation in this rapidly growing field, to ensure patient safety and optimal outcomes.

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## Introduction

Cosmetic surgery tourism refers to the practice of individuals traveling to foreign countries to undergo procedures for cosmetic purposes.<sup>1</sup> As a speciality, the area of orthopaedic cosmetic surgery tourism remains virtually unheard of. However, like every other surgical speciality, its prevalence is expected to rise. This is due to various contributing factors such as escalating private healthcare costs, lengthy elective procedure waiting lists within Ireland's public healthcare system, and the availability of more affordable treatment options overseas.<sup>2–5</sup>

The decision to travel abroad to pursue orthopaedic cosmetic surgery often stems from the desire to save costs, or access specialist procedures such as limb lengthening or corrective surgery for deformity that is not widely available at home. This practice is not without its complications. These complications frequently necessitate management within Ireland's public healthcare system and entail significant costs.<sup>2–5</sup>

While the existing Irish data predominantly focuses on plastic surgery and bariatric procedures within the realm of cosmetic tourism,<sup>2</sup> documentation specific to orthopaedic cases remains scarce. This case report presents a noteworthy instance of orthopaedic cosmetic surgery tourism presenting with serious complications.

## Case

We report the case of a 28 year old male who recently underwent cosmetic bilateral limb lengthening in Turkey in July 2022. The patient stated that the center providing the surgery was found online via a, "Google search". He underwent a virtual consultation via, "WhatsApp". He was unsure if the consultation was with a surgeon. He stated that the procedure was not carried out by the individual providing the consultation. His family were unaware of his plans to undergo surgery abroad. Simultaneous bilateral proximal femur corticotomy, cephalomedullary nailing, and placement of a monorail external fixator bone transport device was performed in a single stage procedure.

He presented to an Irish emergency department [ED] three months later in October 2022 (Figure 1) with, "wound issues". He was discharged on a course of oral antibiotics. He followed up with his primary surgeon in Turkey. By December 2022, his external fixators were removed in Turkey, and he was discharged from the center.



**Figure 1.** ED pre removal of fixator.



**Figure 2.** ED post removal of fixator.

In October 2023, he attended ED in Ireland with a four week history of wound discharge from the left hip surgical wound ([Figure 2](#)). According to the patient, his general practitioner initially thought this to be a dermatological reaction to dressings and referred him to dermatology for consultation. Flucloxacillin and Phenoxymethylpenicillin were commenced empirically by primary care without bacteriological culture or discussion with microbiology or orthopaedics. On presentation to hospital, a weight loss of 10 kg was noted. He was anorexic with a BMI of 21 and anaemic with a Hb of 9.8 g/dL.

The background medical history included asthma, epilepsy, a perforated ear drum, and rhinitis. Medications included Epilim, Neoclarityn, Symbicort, Ventolin. He had no known drug allergies. Socially, the patient worked as a farmer, he was a non-smoker, and self-reported to be 1.67 m tall prior to the procedure.

On admission, inflammatory markers were elevated with a White Cell Count [WCC] of  $18 \times 10^9/L$  and a C-Reactive Protein [CRP] of 95 mg/dL. He was referred to a dietician due to his weight loss and anaemia and the patient was requested to contact his primary surgeon to obtain his implant details. He was commenced on intravenous Flucloxacillin. A viral and coeliac screen was completed, along with a CT Thorax, Abdomen, Pelvis, and faecal occult blood test due to weight loss. A haemolytic screen and blood film showed elliptocytosis. This was thought to be reactive due to infection. He declined the suggestion to consult with psychology on a number of occasions.

A few days into his admission, the patient began to spike temperatures and was tachycardiac 105 bpm. His CRP increased to 143 mg/dL. The left femoral nail was removed the next day. A pus collection was found, and the distal locking screws had damaged threads, necessitating the use of a diamond drill bit for removal. One broken screw remained in situ. Samples were taken for culture and sensitivity testing ([Figure 3](#)).

Day one post operatively, due to ongoing temperature spikes, Vancomycin was added by the Infectious Disease [ID] service. Echocardiography was performed to exclude infectious endocarditis.

Six days after the original request, we received email communication containing the operative note. This was in Turkish and did not contain the implant details. A catalogue detailing the TASARIMMED FN-1 Transverse Intramedullary Nail system was also sent. On the cover, it had the nail dimensions.

On day five post first debridement, a new sinus tract discharged from the right femoral nail surgical site. Debridement and removal of metal was again performed on that side two days later ([Figure 4](#)).



Figure 3. Post removal of left IM nail.

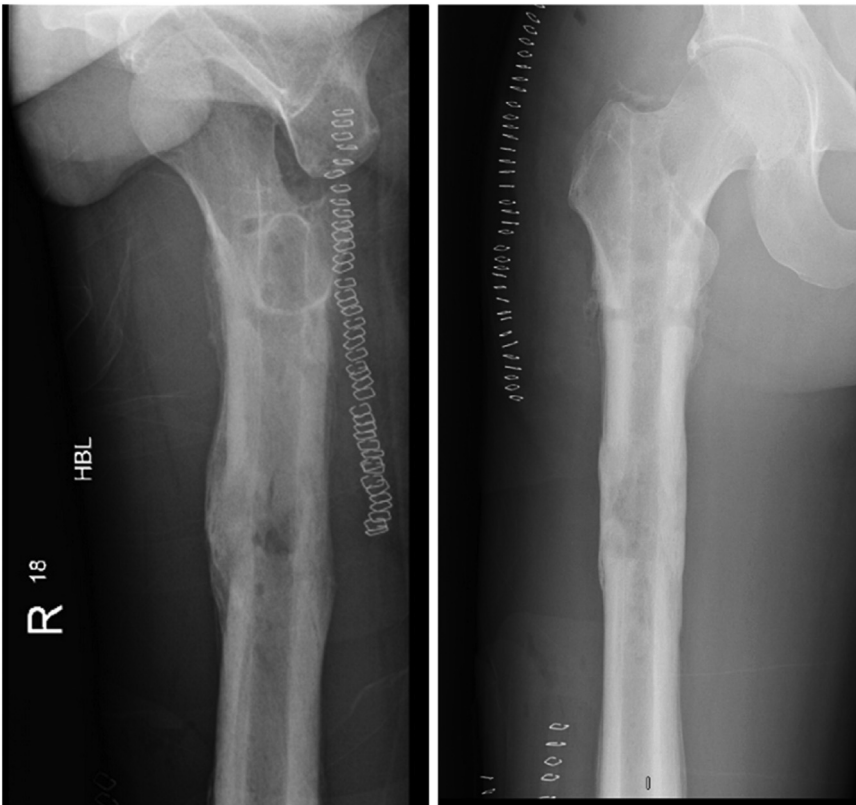


Figure 4. Post removal of right IM nail.

Methicillin-resistant *Staphylococcus aureus* [MSSA] and *Cornebacterium* were isolated from the samples. He was discharged 17 days post admission on Outpatient Parenteral Antimicrobial Therapy [OPAT] on oral Rifampicin and an intravenous Flucloxacillin infusion for eight weeks.

Currently the patient is 1.73 m, gaining 60 mm. For six weeks post operatively, he remained non weight bearing due to the risk of fracture through the femoral screw holes. He progressed to standing static weight bearing exercises for the preceding two months. Inflammatory markers remained stable at follow up clinic appointments.

## Discussion

Limb lengthening surgery is an established procedure in orthopaedic practice, addressing not only congenital and acquired limb discrepancies, but aesthetic enhancements in stature also.<sup>6</sup>

Patients may choose cosmetic limb lengthening for constitutional short stature or personal dissatisfaction with their height. However, ethical considerations require thorough patient selection processes, including psychiatric evaluation, to ensure candidates have realistic expectations and a clear understanding of potential risks.<sup>6-10</sup> Despite its cosmetic nature, limb lengthening surgery carries inherent risks such as non-union, mal union, fracture through the regenerate bone, deformity, joint stiffness, and soft tissue complications.<sup>6-10</sup>

Many lengthening techniques exist in the literature. The most common is the Ilizarov method. In 2005, a Russian study examined radiological and medical data from 1983 to 2006, focusing on 131 patients who underwent bilateral lower limb distraction osteogenesis using an Ilizarov frame.<sup>8</sup> The study reported 95 % of patients underwent tibial lengthening, with a complication rate of 37 %.<sup>8</sup> Thorough psychological evaluation was completed by a psychologist and in-depth counselling, regarding the course of treatment and rehabilitation was discussed.<sup>8</sup> 95 % of patients had a good or, “exceptional outcome”, at the final follow-up, with 130 reporting, “feeling better about themselves”.<sup>8</sup>

Catagni et al., 2005 reported on 54 patients in which a variation of the Ilizarov method was used.<sup>8</sup> It found low complication rates and high levels of patient satisfaction in 54 individuals who underwent bilateral tibial leg lengthening for cosmetic reasons between 1985 and 2001.<sup>8</sup> The study used a hybrid advanced fixator, and a rehabilitation strategy.<sup>8</sup> Again, the authors highlighted the importance of psychological testing and it was an integral part of the assessment process.<sup>8</sup> Patients were given instructions for biweekly pin site care.<sup>8</sup> Complications included the need for iliac crest bone grafts, repeat fibular osteotomies, collapse of regenerate, and leg-length discrepancy.<sup>8</sup>

Emara et al. 2011 described another method in the literature.<sup>9</sup> This investigated the Ilizarov procedure of lengthening, using a nail thereafter.<sup>9</sup> The authors emphasised the importance of a specific post operative pin site care plan, where patients were instructed to use saline and alcohol five times a day. Nailing, was carried out as a secondary procedure once the necessary length was reached. Among the complications, 38 % of the patients reported having, “behavioural problems”, and, “difficulty falling asleep”.<sup>9</sup> There was a revision rate of 13 %.

More recently, the, “Lengthening Over Nail”, technique has shown promising outcomes in minimising invasiveness and achieving satisfactory lengthening.<sup>10</sup> However, the simultaneous use of internal and external implants inevitably risks infection and this must be planned for. In 2008, a South Korean study reviewed 44 patients with idiopathic short stature using an Ilizarov external fixator over an intramedullary nail.<sup>10</sup> Park et al. reported that patients who underwent traditional Ilizarov lengthening experienced fewer complications than those treated with lengthening over a nail.<sup>10</sup> The study highlighted the importance of informed consent and financial considerations when deciding on tibial lengthening techniques.<sup>10</sup>

Havitcioglu et al. reported their results from Turkey in 2020 which focused on 9 patients who underwent limb lengthening using intramedullary nails alone between 2011 and 2018.<sup>6</sup> The mean lengthening achieved was 87 mm with a mean follow-up of 22 months.<sup>6</sup> Complications included insufficient bone regeneration, quadriceps contracture, and proximal locking screw pull-out.<sup>6</sup> The study used three different nailing systems for 9 patients, but there was no consistency in implant use. The authors evaluated patients clinically and psychologically, but there was no detail for how this was done.<sup>6</sup>

## Conclusion

Elective cosmetic limb lengthening surgery represents an evolving field within orthopaedics demonstrating substantial benefits for appropriately selected patients yet underscored by a significant risk profile demanding meticulous perioperative planning coupled with expert surgical execution, and detailed, focused post operative care.

While orthopaedic cosmetic tourism may initially seem attractive due to its perceived affordability, the absence of adequate postoperative support from the treating hospital abroad will inevitably result in patients needing to seek care at local Irish healthcare facilities for management of complications.

This places a substantial burden on the Irish public health services. It is imperative for orthopaedic surgeons and healthcare professionals to recognise the implications of cosmetic surgery tourism and be equipped to address the specific needs and concerns of patients who have undergone procedures overseas. By raising awareness and providing tailored care, healthcare providers can better support patients and mitigate the strain on domestic healthcare systems.

## Ethical approval

Not required.

## Consent

Received.

## Declaration of competing interest

None declared.

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