

CASE REPORT

Bilateral Postaxial Polydactyly of the Foot in an Adolescent: A Case Report

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DISCLOSURE

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ABSTRACT

Polydactyly is the most common congenital anomaly of the foot. While most cases present in early infancy, some present later in life due to poor cosmetic appearance or difficulty in fitting shoes. Surgery is indicated in all cases and gives a satisfactory result irrespective of the time of presentation, as long as it is performed after the development of ossification centres in the affected rays. Most subjects with postaxial polydactyly have satisfactory outcome following surgery. Poor results are often associated with preaxial duplications and persistent hallux varus.

We report a 16-year-old boy with bilateral postaxial polydactyly, who presented with complaints of poor cosmetic appearance of the feet and difficulty in fitting normal shoes. He underwent surgical excision of the sixth digits and reconstruction of the adjoining 5th digits, and was quite satisfied with the outcome of treatment.

Key words: Polydactyly, Foot deformity, Adolescents, Late presentation

INTRODUCTION

Polydactyly is the most common congenital anomaly of the foot and refers to the presence of six or more toes on one foot.^{1,2,3} It has a prevalence of about 1.7 cases per 1000 births, is more common in blacks than whites and is bilateral in 50% of cases.^{4,5} Three types of polydactyly have been described: preaxial,

postaxial and central polydactyly. The postaxial variety accounts for 80% of cases.⁶

Postaxial polydactyly is defined as a complete or partial supernumerary digit on the lateral aspect of the foot. There is commonly an abnormality of the associated metatarsal. Bilateral postaxial polydactyly commonly occurs in isolation but has been associated with

some genetic syndromes such as Ellis-van Creveld syndrome and oral-facial-digital syndrome.² Most cases of polydactyly present in infancy or later in life due to pain, poor cosmetic appearance or difficulty in fitting shoes.

Surgery is indicated in all cases to improve cosmetic appearance and enhance shoe fitting. Antero-posterior and lateral radiographs are required before the procedure to accurately define the anatomy of the deformity. Most cases are treated during childhood before walking age while adult cases are rare.⁷ Surgery is usually delayed till about 1 year for ossification to occur within the affected rays for accurate anatomic delineation. However, it is common to see much older children and adults with untreated polydactyly in the low- and medium income countries (LMICs).

The aim of the study was to report our experience in the management of a 16-year-old male with bilateral postaxial polydactyly.

CASE PRESENTATION

Mr. A, a 16-year student presented with extra-digits of both feet. His main complaints were difficulty in fitting shoes and abnormal cosmetic appearance. The parents volunteered that the reason for the late presentation was the fear of subjecting their son to a surgical procedure. Examination revealed an extra 5th toe on each foot as shown in Figures 1. Radiological examination showed 5th ray duplication on both sides, with phalangeal bifurcation on the left and metatarsal bifurcation on the right (Figure 2). There was an associated angulation of the right 5th digit.

At surgery, the extra digit was exposed through a lateral foot incision. The extra-digit on the right was excised and a corrective osteotomy performed to re-align the metatarsal. A Kirschner wire was inserted to maintain the alignment. On the left side, the extra-digit was equally removed by disarticulation at the metatarsophalangeal joint and the joint capsule and collateral ligament repaired. We closed the skin incision by incorporating a Z-plasty across the metatarsophalangeal joint to prevent a scar contracture. Both wounds were dressed and a short leg splint applied to both sides. Figure 3 shows the post-operative radiological appearance of both feet.

The post-operative period was uneventful and the splint on the left was removed at 2 weeks while the one on the right was removed at 6 weeks. Physical examination at 3 months' post-operative period showed satisfactory cosmetic appearance and patient was also able to wear normal shoes. Figure 4 shows the appearance at three months' post-operative day.

Figure 1. Pre-operative clinical photograph of both feet



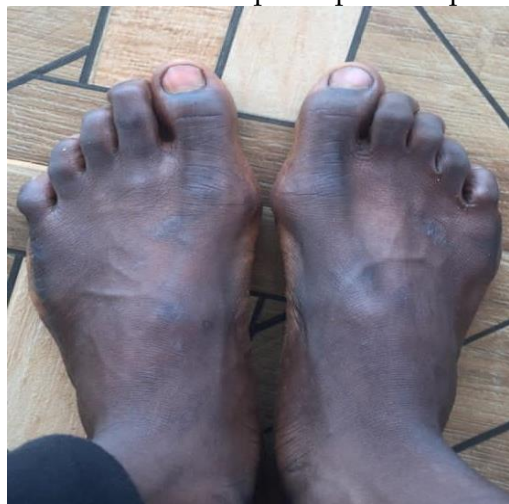
Figure 2. Pre-operative anterior-posterior X-ray of both feet



Figure 3. Post-operative anterior-posterior x-ray of both feet



Figure 4. Clinical photograph of both feet taken at 3 months' post-operative period



DISCUSSION

The timing of surgery in polydactyly has no bearing on the outcome of treatment as demonstrated by Kubat *et al.* in their study on 24 patients (18 patients with postaxial polydactyly and 8 patients with preaxial polydactyly).⁸ It is however, advised that surgery should be delayed till the patient is at least one year for accurate anatomic delineation of the affected ray. There are no absolute contraindications to surgical treatment and some patient may choose not to remove the extra digit or delay the removal till later in life.

A detailed preoperative assessment is required before surgery and this includes radiographs to formulate a treatment plan and investigations to rule out associated congenital anomalies. Surgical treatment involves disarticulation or excision of the extra-digit and reconstruction of the adjoining digit to achieve a normal or near normal foot structure and function.⁹ The choice of which toe to be removed (whether the 5th or 6th toe) depends on the morphological and radiological configurations. The less dominant toe should be removed as there is no advantage of removing one over the other.¹⁰ We excised the 6th toes on both sides in our case as they were morphologically less dominant than the 5th.

The reconstruction may take the form of repair of the collateral ligament and joint capsule or the re-alignment osteotomy of an angulated adjoining toe. When the 5th toe is excised, the inter-metatarsal ligament should be approximated to support the lateral longitudinal arch of the foot.¹¹ We repaired the lateral collateral ligament and the joint capsule on the left foot in our case, while a re-alignment osteotomy of the 5th metatarsal was

performed on the right foot. Most subjects with postaxial polydactyly have satisfactory outcome following surgery. Poor results are often associated with preaxial duplications and persistent hallux varus.¹² The complications that may occur include outgrowth of incomplete elements not yet ossified as at the time of surgery, metatarsophalangeal joint subluxation and angular deformities. The index case in this report was quite satisfied by the outcome of the procedure and no complications were recorded.

In conclusion, surgery is indicated in all cases of post-axial polydactyly and the treatment outcome is generally satisfactory irrespective of the timing of surgery. This was true in our index case who, despite presenting late at 16 years had a satisfactory outcome following surgical excision and reconstruction.

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