A CASE REPORT ON GANGRENE FOLLOWING SIMULTANEOUS TRAUMATIC OPEN METATARSOPHALANGEAL AND INTERPHALANGEAL DISLOCATIONS OF THE LEFT BIG TOE

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ABSTRACT

Simultaneous metatarsophalangeal and interphalangeal dislocations of the big toe are rare injuries. Gangrene of the big toe following open dislocations was reported in a 20-year-old man.

Keywords: *Simultaneous metatarsophalangeal and interphalangeal dislocations of big toe, Gangrene.*

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CASE REPORT

A 20-year-old man was admitted with pain, deformity and bleeding from his left foot one hour following a motor-cycle accident. There was a 6 cm open wound over the dorsal aspect of the first web space. The distal phalanx of the big and second toes were hyperflexed at the interphalangeal joint. The dorsalis pedis was palpable. The capillary return of the toes was normal. There was bleeding following pin prick. Sensation was diminished on lateral side of the left big toe. Radiological examination revealed plantar displacement of the distal phalanges of the big and second toes. (Fig 1)

Examination under anaesthesia 2 hours after the accident revealed the metatarsophalangeal joint of the left big toe was unstable and dislocatable. A thorough wound debridement was done. The lateral neurovascular bundle to the big toe was torn at the level of the metatarsophalangeal joint. The medial bundle was intact. The dislocations were reduced and stabilized with K-wires (Fig 2). The lateral digital nerve was repaired. The lateral digital artery was not repaired because the whole distal segment was thrombosed. The circulation to the big toe was adequate as the capillary return was normal and there was bleeding following pin prick. The wound was left open. The foot was supported by a below knee backslab.

Twenty-four hours after the operation, the big toe was noted to be dusky and the capillary return and bleeding following pin prick were delayed. Sensation was diminished.

Dry gangrene supervened and demarcation was established at the level of the metatarsophalangeal joint. There were no signs of infection.

The big toe was disarticulated at the metatarsophalangeal joint 25 days following injury. The medial vascular bundle was found to be thrombosed. All the K-wires were removed. The distal interphalangeal joint of the second toe was stable.

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Fig 1 - Radiological examination revealed interphalangeal dislocation of the big toe and distal interphalangeal dislocation of the second toe. The metatarsophalangeal dislocation of the big toe was not shown.

The wound was left open and covered with split skin graft 10 days after disarticulation. The graft was taken one week later and the patient was discharged.

He was seen 6 weeks after discharge. The wound had healed. He was able to walk well.

DISCUSSION

Simultaneous metatarsophalangeal and interphalangeal dislocations of the big toe are rare injuries. In the past 10 years, no report on the above injuries was described. De Casas et al[1] and Yu et al[2], each had a case report on dorsal dislocation of the metatarsophalangeal joint of the big toe and both described it as rare injury.

In our patient, the metatarsophalangeal dislocation of the left big toe was not detected on the initial radiological examination. However, it was demonstrated during examination under anaesthesia and intraoperative radiological examination. (Fig 3)

Gangrene of the big toe following the injuries was due to thrombosis of the medial vascular bundle as it was the only blood supply to the big toe. The possible causes of the delayed thrombosis were intimal tear from stretching, contusions of the vessels and oedema compressing the vessels.

The dorsalis pedis passes between the first and second metatarsal bones from dorsum to the sole and joins the lateral

Fig 2 - The dislocations were reduced and stabilized with K-wires.

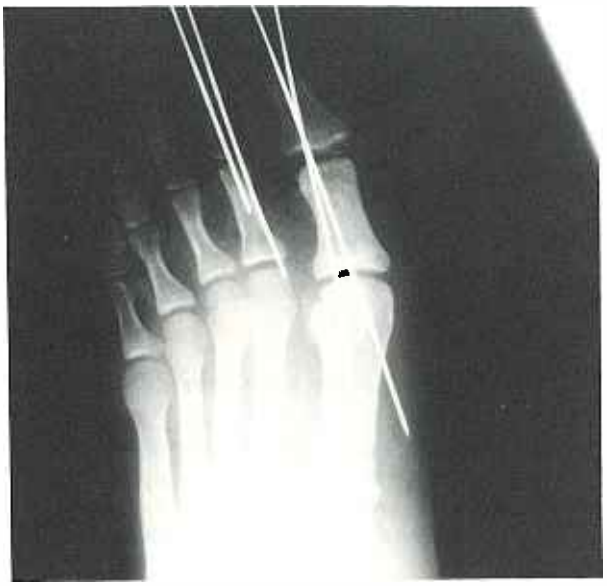

Fig 3 - Intra-operative radiograph revealed the proximal phalanx of the left big toe was fixed in medially subluxated position. The joint was finally reduced and fixed in the anatomical position.

plantar artery to complete the plantar arch. The plantar arch gives digital arteries to the toes.

Since there was open wound and soft tissue injury over the dorsal aspect of the first web space, there was possibility of injury to the dorsalis pedis. This could compromise the blood supply to the plantar arch leading to delayed thrombosis of the medial vascular bundle. However, we did not explore to confirm the integrity of this vessel during the disarticulation.

CONCLUSION

In summary, this patient sustained rare injuries to the big toe. A case report of this patient helps us to further appreciate the vascular pattern of the foot and toes.

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