A Case Report of Atasoy Antenna Procedure

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Abstract

A 25-year-old man presented with hook nail and painful atrophic pulp over the tip of the terminal phalanx of the right thumb 3 months following a crush injury. Lateral nail folds were poorly defined and the nail was curved. The patient was unable to pick up objects with a precision pinch. Reconstruction was performed with Atasoy antenna procedure. One year later, normal pulp contour of the injured thumb was restored and appearance of the nail was normal.

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Key words: Adequate pulp, Cross finger flap, Deformed nail, Multiple Kirschner wires

Introduction

The hook nail deformity is a relatively common problem after fingertip amputations. It is usually ignored but can be quite disabling. In symptomatic cases, the deformity can be corrected by an Atasoy antenna procedure.[1] The curved nail plate is removed, the pulp is reflected from the distal phalanx in proximal direction to a normal contour, the scar tissue is excised and the nail bed is elevated off the distal phalanx and splinted by multiple small Kirschner pins in a straight position. The defect created is covered with a cross finger flap.

Case Report

A 25-year-old man sustained a crush injury to his right thumb. The distal one-quarter of the terminal phalanx was attached proximally by the radial digital nerve. The thumb tip had no turgidity and the capillary return was sluggish. The radial digital artery and ulnar neurovascular bundle were severed. Radiograph of the thumb revealed fracture at the distal one-fifth of the terminal phalanx. Following wound debridement, the ulnar digital nerve was repaired and the amputated part was revascularised by anastomosing the ulnar digital artery. The radial digital artery was not repaired as it was too small. No vein was available for anastomosis. The turgidity of the thumb tip returned and the capillary return was adequate immediately after operation. However, venous congestion occurred and the thumb tip became gangrenous. The patient was not keen for further surgery and the thumb was treated with daily spirit dressing. The gangrenous portion separated two weeks later and the defect healed by secondary intention. Three months later, the patient complained of painful atrophic thumb tip and hook nail (Fig. 1). The nail was curved in sagittal and coronal planes. The lateral nail fold was poorly defined. The patient was unable to pick up object with the precision pinch. The distal interphalangeal joint was in slight flexion deformity due to contracture of the scar tissue. The terminal phalanx was palpable through the atrophic pulp. An Atasoy antenna procedure[1] was performed. The curved nail plate was removed. The pulp was reflected from the distal phalanx in proximal direction until normal contour and the scar tissue was excised. The nail bed was elevated off the distal phalanx and splinted by three small pins in straight position. The distal interphalangeal joint was splinted in a straight position by a Kirschner wire. The defect created was covered with a cross finger flap taken from the proximal phalanx of the index finger (Fig. 2). Occupational therapy commenced on the first postoperative day. Two weeks later, the flap was divided. The pins were removed six weeks later. One year later, normal pulp contour was restored at the thumb tip and appearance of the nail was normal (Fig. 3). The bone was covered with flap of good padding tissue. The distal interphalangeal joint achieved full range of movement. The thumb had excellent function and two-point discrimination was 7 mm. The index finger had no donor morbidity.

Discussion

Hook nail deformity can develop when there is no bony support under the nail or the volar pulp tissue is

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Fig. 1. The right thumb presented with hook nail and atrophic tip. The tip of the terminal phalanx was palpable through the atrophic tip.

Fig. 2. The deformity was corrected with Atasoy antenna procedure. The nail was splinted in a straight position by three small pins. The defect created was covered with a cross finger flap taken from the proximal phalanx of the index finger.

Fig. 3. One year later, the thumb restored normal pulp contour and nail appearance. The terminal phalanx was covered with tissue of good padding.

deficient and healed by scar formation. Following contracture of the scar tissue, the nail is pulled over the bone. Prevention of such deformity is important. During resurfacing of the finger defect following amputation, the nail must be trimmed to the level of the bone so that the nail has adequate bony support. The defect must be covered by adequate well-padded soft tissue without tension.

Hook nail is cosmetically unsightly and can be ignored if it does not interfere with the function. When the deformity occurs at the thumb or index finger, it can interfere with picking up small objects with the precision pinch. The fingertip can be very sensitive if it is not covered by a flap with adequate padding tissue.

In this case, there was inadequate pulp tissue causing hook nail deformity and sensitive thumb tip. Both problems were solved by the Atasoy antenna procedure.[1] One-year after reconstruction, normal pulp contour of the thumb was restored, appearance of the nail was normal and it could function normally.

Conclusion

During resurfacing of fingertip injury, hook nail deformity should be prevented if care is taken to ensure that adequate bony support for the nail and defect is covered with a flap of adequate padding. In symptomatic cases, it can be corrected with Atasoy antenna procedure[1] as such reconstruction directly addresses the underlying aetiology.

REFERENCES

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