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European Board of Hand Surgery (EBHS) Examination Questions

Question 1

The posterior interosseous nerve

A	Is a branch of the radial nerve	T/F
B	Runs between the two layers of supinator	T/F
C	Supplies sensory fibres to the distal radioulnar joint	T/F
D	May have a cutaneous distribution	T/F
E	Supplies the carpometacarpal joints	T/F

Question 2

Metacarpal fractures

A	The middle metacarpal is normally the longest metacarpal bone	T/F
B	Index metacarpal fractures may usually be managed non-operatively	T/F
C	Significant functional impairment is likely after conservative management of a fifth metacarpal neck fracture with 30 degrees of palmar angulation	T/F
D	Multiple metacarpal fractures are a relative indication for internal fixation	T/F
E	Retrograde intramedullary fixation is contraindicated because of the damage to the metacarpal head	T/F

Question 3

Simple syndactyly

A	Is bilateral in 50% of cases	T/F
B	The optimum time of surgery in a ring/ little syndactyly is around 6 months	T/F
C	The optimum time of surgery in a middle/ ring syndactyly is around 6 months	T/F
D	The third web space is most commonly affected in isolated syndactyly	T/F
E	Recurrent web creep occurs in 25%	T/F

Clinical case

This 34-year-old lady has recently arrived from Malawi. She sustained a thermal burn of the dorsum of the left non-dominant hand at the age of 4 years. She now presents with scar problems. Over the past few years

Correction (February 2023): The answer to Question 2B has been corrected to F in the online version.

the scar has been unstable, with recurrent bleeding and pain on movement. *Image courtesy of Dr Leila Harhaus, Ludwigshafen, Germany* (Figure 1).

Figure 1. Unstable burn scar on dorsum of hand.

- What are the chronic sequelae of burns?
- What would be the differential diagnosis for an unstable scar of this nature?
- Offer reconstructive options for this scar.

EBHS questions February 2023 – answers

Question 1

The posterior interosseous nerve (PIN)

A	Is a branch of the radial nerve	T
B	Runs between the two layers of supinator	T
C	Supplies sensory fibres to the distal radioulnar joint	T
D	May have a cutaneous distribution	T
E	Supplies the carpometacarpal joints	T

The radial nerve divides into a superficial branch and posterior interosseous branch at the level of the capitellum. The PIN then runs between the two layers of supinator. It wraps round the radius to enter the extensor compartment. When it emerges from the supinator the nerve gives off six muscular branches (Elgafy et al., 2000). It supplies sensory fibres to the radiocarpal joint, the distal radio ulnar joint and to the carpometacarpal joints (remember Hilton's law) (Schmidt and Lanz, 2003). The nerve may also have a terminal sensory branch supplying the skin over the dorsum of the second and third rays. (Yu et al., 2004).

Foot note. There is relatively little anatomy of the radial nerve and PIN in standard textbooks, therefore we encourage candidates to study relevant anatomy in other textbooks. Two of these are listed in the references below.

Question 2

Metacarpal fractures

A	The middle metacarpal is normally the longest metacarpal bone	F
B	Index metacarpal fractures may usually be managed non-operatively	F
C	Significant functional impairment is likely after conservative management of a fifth metacarpal neck fracture with 30 degrees of palmar angulation	F
D	Multiple metacarpal fractures are a relative indication for internal fixation	T
E	Retrograde intramedullary fixation is contraindicated because of the damage to the metacarpal head	F

The index metacarpal is the longest. The ring metacarpal is the narrowest. (Yu, et al., 2004).

Index finger metacarpals commonly displace and unless the fracture is completely undisplaced early operative management is usually indicated.

Non-operative management of a little finger metacarpal neck fracture seems to offer little or no disadvantage when compared with operative management (Ford et al., 1989; Sletten et al., 2015; Westbrook, 2008).

The damage to the head of the metacarpal is modest in modern cannulated screw fixation (Calcagni et al., 2018; Guidi et al., 2020).

Question 3

Simple syndactyly

A	Is bilateral in 50% of cases	T
B	The optimum time of surgery in a ring/ little syndactyly is around 6 months of age	T
C	The optimum time of surgery in a middle/ ring syndactyly is around 6 months of age	F
D	The third web space is most commonly affected in isolated syndactyly	T
E	Recurrent web creep after surgery occurs in 25%	F

Fifty per cent of cases of simple syndactyly are bilateral, with a 2:1 male-to-female ratio. The optimum time for surgery in fingers with different growth rates is earlier than in fingers with similar growth rates. If the ring/little is left too late, there is a risk of flexion contracture and rotational deformity in the ring finger. A third web syndactyly can be safely released after the age of 12 months.

The third web space is affected in 55%, ring/little 25%, index/middle 15%, thumb/index 5%.

Web creep has been reported in up to 8% of cases, with web thickening without creep in a further 42%. (McCombe and Soldado, 2022).

Clinical case

The salient features for discussion in this case are:

- What are the chronic sequelae of burns? Dorsal contractures are the most common problem encountered after hand burns. This may occur after skin grafting. Other complications include claw deformity, palmar contracture, web space deformity, hypertrophic scar and contracture bands, amputation and nail bed deformity (Germann and Reichenberger, 2022).
- What would be the differential diagnosis for an unstable scar of this nature? The most important thing is to mention the need to exclude a squamous cell carcinoma (Marjolin ulcer) in a chronic, unstable scar.
- Offer reconstructive options for this scar. This lady was treated with a first dorsal metacarpal artery flap (Figure 2). What kind of flap is this? Where is the pedicle?

- This is a distally based (neuro)vascular island flap based on the dorsal metacarpal artery (DMCA). There are two variations: Maruyam described raising the flap based on the entire DMCA (Maruyama, 1990) and

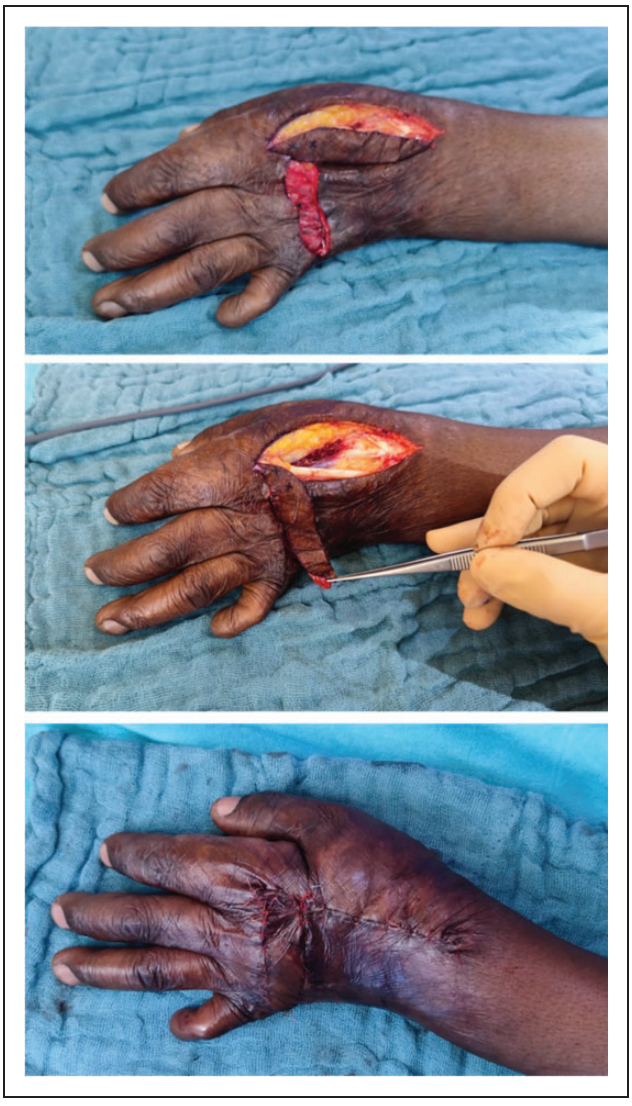

Figure 2. Unstable burn scar excised and reconstructed with first dorsal metacarpal flap.

Quaba described raising it on the perforator of the DMCA (Quaba and Davidson, 1990). The donor site lies at the proximal margin of the first commissure. Usually, the donor defect can be closed primarily.

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