

The survivors' guide to working in plastic surgery

Introduction

Starting any new training block can be a daunting experience, more so following the introduction of foundation training. It is now not uncommon for foundation year and core trainee doctors to rotate through specialist fields of medicine and surgery, such as plastic surgery. This often increases anxiety levels as only a few medical students rotate through plastic surgery. As with any other specialty, time spent preparing yourself for the new job will go a long way in building up your confidence.

How to prepare for your plastics post

Each department will have a number of guidelines and protocols. Try to get hold of these and read them at the earliest opportunity. Guidelines for deep vein thrombosis and antibiotic prophylaxis can often be found on the trust website or may be given to you at the department induction.

Plastic surgery is a wide and interesting specialty. Junior doctors can learn basics of tissue handling, suturing and skin grafting techniques in this posting. Going on a basic surgical skills course during this period would be useful to learn these skills. Reading about the wound healing process and surgical anatomy, particularly related to the hand, is essential for this posting. Revision of advanced trauma life support skills will help you to deal with serious injuries including burns.

What to expect from your plastics post

Wards

Ward duties will be an essential part of your daily routine work as a junior trainee. Common medical and surgical co-morbidities such as diabetes mellitus are often

seen in plastic surgery practice. A ward round with a senior colleague will be helpful to get a plastic surgeon's insight while reviewing patients. This is a good time to view, and use as a comparison, any wounds or free flaps that you may be called to review later. You will be expected to ensure that appropriate postoperative investigations are performed, such as checking the haemoglobin level.

On call

There are only a few plastic surgery emergencies that require immediate intervention. The majority of referrals from accident and emergency and the community can be deferred to the following day's trauma clinic or equivalent. Urgent admission is required for open hand fractures, tendon sheath infections and traumatic amputations. Burn patients will need a proper assessment and admission depending on requirements of local hospital policies.

It is a good idea to review patients with flaps at the start of your on-call shift. It will allow you to compare and judge any changes that may develop later. You can also take this opportunity to ensure that adequate postoperative fluids and analgesia are prescribed. A healthy flap is warm and pink with a normal capillary refill. Experienced colleagues may use a handheld Doppler probe to confirm the blood flow. It would be helpful for you to learn how to use these probes during this posting. Discuss with your seniors at an early stage if you have concerns about flaps such as discolouration, cold to touch or change in capillary refill time.

In theatre

Theatre sessions are the most exciting part of any surgical specialty. You will come across sophisticated instruments such as microscopes and lasers in plastic surgery theatres. This is a good place to learn about tissue handling, placing incisions in natural lines and tendon repair techniques.

Clinics

Clinics are varied, ranging from dressing or trauma clinics to elective clinics (e.g.

breast, hand). Some departments may ask you to pre-assess patients for elective surgery. Besides the usual medical clerking and examination, it is important to ensure that relevant preoperative investigations like blood tests are performed and reviewed. It is better to discuss any concerns with an anaesthetist or the operating surgeon at the pre-assessment stage rather than waiting until the day of surgery.

Team work

Remember that you are part of a team. Nurses are often helpful, with a lot of experience and advice. Specialist physiotherapists make a significant contribution towards patient management in hand surgeries. Never hesitate to ask for help as patient safety should be the main priority. Senior colleagues will always be supportive and realize your relative inexperience in this specialty. With the ongoing reduction in working hours, many junior doctors are finding less time dedicated to learning opportunities in theatre and clinics. Good teamwork and understanding among your colleagues can allow you to take it in turns to attend theatre or clinics.

Plastic surgery practice is multidisciplinary and often involves interaction with other surgical specialties, including paediatricians, speech therapists, occupational therapists and physiotherapists for treatment of congenital defects such as craniofacial defects and hand deformities. Interaction with orthopaedic, vascular, otolaryngological, breast and maxillofacial surgeons is often required in treatment of complex cases.

Trauma

Hand trauma is dealt with by plastic surgeons in many hospitals but there can be an overlap with the orthopaedic intake. It is important to be familiar with local protocols for admission of such injuries. Plastic surgeons also deal with injuries to the rest of the body such as facial and limb trauma. There will be situations where plastic surgeons work closely with other specialists to deal with such trauma cases (e.g. open fractures).

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For hand trauma, it is important to enquire about the mechanism of injury, protective wear if any and the time of the incident. Always ask about hand dominance and employment means in such injuries, as this can influence the management and outcome. A thorough assessment of the flexor and extensor tendons along with neurovascular integrity is mandatory. Radiographs help to confirm fractures and foreign bodies.

It is important to start prophylactic antibiotics and enquire about tetanus immunization status in cases where the skin is breached. If you are taking a referral from elsewhere, it is appropriate to ask the referring doctor to check these at an early stage. Many departments have dressing clinics which may be used to review non-urgent referrals. While closed hand fractures can be managed by either surgical or non-surgical methods, open fractures often require an operation. Fractures associated with rotational deformities may need surgical intervention and hence the need for discussion with seniors.

Tendon sheath infections need urgent admission for limb elevation, intravenous antibiotics and washout as required. This diagnosis should be suspected in any painful swollen flexed finger. Traumatic amputations will also need urgent admission and the potential for replantation should be explored.

Revision of hand anatomy and examination techniques will help to increase your confidence in dealing with hand injuries.

Burns

Some plastic surgery departments also serve as the regional burn unit. A proper general assessment and fluid management are crucial steps in the treatment of such patients. The airway should be assessed first and any compromise addressed promptly in all burn patients. The history of the aetiological agent and time of exposure should be noted whenever possible.

The severity of burns depends on the depth and size of the burn. There are several methods of estimating the size of burn and the amount of fluid required for resuscitation. The 'rule of nines' is a useful guide to measure the burn size

(Hettiarachy and Papini, 2004). The body has been divided into eleven sections to calculate the percentage of burned surface area: head, right arm, left arm, chest, abdomen, upper back, lower back, right thigh, left thigh, right leg (below the knee) and left leg (below the knee). Each of these sections takes about 9% of the body surface area. Added all together, these sections account for 99%, with the genitals making up the last 1%. The palmar surface of the hand and fingers of the patient forms approximately 1% of the patient's body surface.

A fluid measurement formula such as the Parkland Hospital formula is commonly used to measure the amount of fluid required (this is calculated as 4 ml/kg/% of total body surface area which is burnt) for the first 24 hours after the injury (Hettiarachy and Papini, 2004). One half of the total Ringer's lactate volume required using this formula is transfused in the first 8 hours post burn and the remaining half in the next 16 hours. In children, the goal should be to maintain an average urinary output of 1 ml/kg/hour.

Remember the risk of inhalational injury, infections and metabolic disturbances associated with burns. Mortality and morbidity increases with burns at extremes of age. Referral to a burn centre is required in partial thickness burns involving more than 10% of the total body surface area, full thickness burns, electrical and chemical burns and in patients with pre-existing medical problems. Admission is also required for those with flash burns to the face (risk of airway compromise) and circumferential burns (may need escharotomy). Burns involving hands, feet, genitalia, major joints and associated with underlying fractures also need special attention.

Elective

The most well-known area of plastic surgery is aesthetic or cosmetic surgery but in practice juniors come across this less frequently. Reconstructive surgery is common and can involve congenital, traumatic, degenerative and neoplastic conditions. The reconstructive ladder of plastic surgery includes, in increasing complexity, healing by secondary intention, primary intention, delayed primary closure, skin graft, tissue expansion, local flap and free flap. The worry with flaps is necrosis resulting from disruption in the blood supply, hence the need for regular flap observations postoperatively.

Body contouring methods such as liposuction are a form of aesthetic surgery. Congenital anomalies such as cleft lip and palate are sometimes dealt by plastic surgeons. Breast surgery is an overlap field with general surgeons, while skin malignancies are often dealt by plastic surgeons.

Conclusions

A rotation in plastic surgery can be more interesting with some preparation. It provides a good opportunity to practise your surgical skills and revise your anatomy knowledge. **BJHM**

Conflict of interest: none.

Hettiarachy S, Papini R (2004) Initial management of a major burn: II--assessment and resuscitation. *BMJ* **329**(7457): 101-3

Further reading

Nakhdjevani A, Baker R, Ahmadi H (2007) *Plastic Surgery Survival Guide to Trauma*. Royal Society of Medicine Press, London
Thorne CH, Bartlett SP, Beasley RW, Aston SJ, Gurtner GC (2007) *Grabb and Smith's Plastic Surgery*. 6th edn. Lippincott Williams & Wilkins, Philadelphia

KEY POINTS

- A little preparation will go a long way to alleviating your anxiety.
- Never hesitate to seek help and use the opportunity to learn.
- Seize opportunities to attend theatre and clinic sessions.
- Plastic surgery is gratifying and you should enjoy your rotation.