

Scenarios: Surgical Pathology + Operative Surgery

8



Ranunculus

Mediocrity is the jailor of freedom and the enemy of growth.
(John Fitzgerald Kennedy)

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8.1 Key Tips

1. Expect one trauma case and another complication case
2. Listen to the question—the emphasis may vary depending on the content of the rest of the Examination
3. If you cannot answer the question—best to say so. The examiner will move on. If it is a basic question, the examiner will re-direct the question in order to get the correct answer
4. A basic knowledge and interpretation of relevant histological slides is expected by the examiners

The scenarios of these oral examinations, known as ‘Surgical Pathology & Operative Surgery’ (SPOS), are two half-hour interactions, each with two examiners.

SPOS I consists of Scenarios, and SPOS II are clinical and pathology slides.

These two sessions tend to be complimentary to avoid any overlap of questions. The scenarios are mainly used for complications and trauma. They are perhaps the most difficult to prepare you for, because they are unpredictable and yet follow some standard clinical situations. It is in the scenarios that the candidate has the opportunity, to demonstrate all his or her skills of diagnosis, interpretation, clinical management and importantly, has the maturity to address unexpected clinical developments, complications and disasters.

Here are some mock clinical scenarios we have created to illustrate how you should communicate and perform to a successful standard:

8.2 Scenario 01 (Figs. 8.1, 8.2, 8.3, and 8.4)

Fig. 8.1 Shows the chronic venous ulcer on the lower shin of a 90-year-old lady. 3 months of intensive dressings have failed to achieve healing



Examiners: This 90-year-old woman in a rest home with heart failure and mild dementia has a chronic painful ulcer for at least 3 months. Nurses are losing the treatment battle as the ulcer continues to grow in size and become more necrotic. What are your initial thoughts?

Necrotic ulcers, pressure sores and other wounds in very elderly patients are not uncommon problems, such as the chronic ulcer in this 90-year-old woman's left shin (Fig. 8.1). Sepsis from these wounds combined with multiple comorbidities can be potentially limb or life threatening. What are the real risks of proceeding with surgical debridement under local anaesthetic with minimal IV sedation versus the only other option of no treatment other than analgesia? What is the state of the peripheral circulation? Is diabetes a factor to consider? Is this a venous ulcer (most likely given the macroscopic appearance) or an arterial ulcer? Should malignancy be considered? How do you obtain informed consent, what do the family think?

The photographs show a white surgical marking pen line and blanching with bleeding needle points from local anaesthetic injection.

Which would be the safest local anaesthetic and what is the safe dose? Should an anaesthetist be present to give the IV sedation and what vital sign monitoring technology is available in the facility?

Fig. 8.2 Shows the ulcer following wide excision under local anaesthetic with a very light intravenous sedation



Examiners: *The ulcer has been widely excised and debrided down to healthy periosteum over the lower anterior tibia. The defect measures 6 × 5 cm. She has tolerated this surgery well so far. What would you recommend next?*

Half of the problem has been solved by removing the painful necrotic ulcer (Fig. 8.2).

Is there tissue missing?—YES.

Direct wound closure is clearly not possible. Local flap repair would necessitate a significant secondary defect which would require a skin graft.

A skin graft to the periosteum is a possibility but with a poor recipient bed. How can we buy some time with which to improve the blood supply?

Negative wound pressure devices come to mind, which will provide cover and prevent secondary infection. Are there any suitable allograft materials such as human amnion/chorion 'off-the-shelf' products, which may have a role combined with the negative wound pressure therapy? Would daily dressings with saline-soaked gauze, oral antibiotics and bed rest with leg elevation be a simpler solution?

Fig. 8.3 Shows the application of an allograft (Epifix derived from placental tissue) plus negative wound pressure therapy device



Discuss the mechanism by which negative wound therapy devices can help manage chronic wounds? What added value would a product such as Epifix (angiogenesis inducing homograft) bring to the management?

Negative pressure wound therapy induces healing by a number of synergistic mechanisms including: increasing vascularity to the wound, removing waste and toxic wound exudate products, forming a gentle closed occlusive dressing, inducing the early phases of wound healing and probably by a small biomechanical expansion effect on the wound edges (Fig. 8.3). Many different forms of the product are commercially available with various settings and device sizes, including the convenient minisystem shown above which can be strapped to the patient's leg. This is the SNaP system which is based on a plunger negative pressure action, which is simple and silent (no bleeps or annoying computer-driven pumps). Special skills are required to fit and monitor the devices which nursing staff are usually familiar with. The combination of tissue growth factors in the homograft Epifix is growing in popularity but costs can be prohibitive as these products are not cheap.

Fig. 8.4 Shows significant wound shrinkage and granulation formation at 10 weeks after surgical debridement



Examiners: This woman's ulcer is now 73 days post debridement. What are your comments? What else could you suggest?

There has been significant reduction in the ulcer size circumferentially in the last 10 weeks and healthy granulation tissue is seen filling the central defect (Fig. 8.4). The size of the wound is now approximately 4×3 cm compared to the initial 6×5 cm after surgical debridement, so this is definite, but slow progress. It is tempting to think about adding a thin split skin graft to the now vascularised wound bed but this would create a secondary defect and require another surgical procedure, however minor. You could suggest continuing with simple occlusive dressings with saline-soaked gauze, some topical antibiotic + low concentration steroid to discourage hypergranulation and/or the use of Silver Nitrate sticks for control of troublesome areas. Compression stockings over the dressing would also help with the venous hypertension in her leg and prevent further areas of ulceration. It would depend to a degree on the patient's comfort, the confidence of the nursing team to continue managing the wound (which they have done well to date) and ongoing conversations with the family at large.

8.3 Scenario 02 (Figs. 8.5, 8.6, 8.7, and 8.8)

Fig. 8.5 Shows a 39-year-old patient with functionally disabling bilateral severe breast hypertrophy. She wears an F cup brassiere



Examiners: This 39-year-old woman is concerned with her breast size and the functional problems it presents her. She runs her own business and is planning to marry her fiancé in 3 months.

Discuss your management plan?

What is the diagnosis?

What are her likely symptoms?

What method of surgery would you select for her?

Are there any concerns?

This is a case of severe breast hypertrophy in a young patient with relatively high BMI (Fig. 8.5). She would be suffering from the usual mechanical stresses of breast hypertrophy on her trunk, neck and back with pain and discomfort. Sleep disturbance and indigestion secondary to this degree of hypertrophy are symptomatic. This patient would certainly struggle to fit anything smaller than a G cup bra and other clothing issues may be a problem. She is probably self-conscious of this breast size as it may attract unwanted attention socially. Intertrigo problems, indentations from her bra straps and the engorged breast veins draining the nipple-areolar regions are other features which may concern her. A breast reduction technique combining liposuction and parenchymal resection is the best method for preserving the nipple-areolar complex on a reliable supra-medial dermoglandular pedicle. An aesthetic breast reduction could be planned so that she is healed and recovered in time for her imminent wedding. This is a large operation which could take 3–4 hours and the likely total resection weight would be >1.5 kg. Her high BMI adds to the surgical and anaesthetic risk factors.

Fig. 8.6 Reference markings and breast drawings for modified Lejour-style bilateral breast reduction



Examiners: Comment on the breast drawings? What are the important principles of planning a reduction mammoplasty?

The breast drawings highlight the asymmetry between each breast and also define the key reference planes—midline, breast meridian, inframammary fold level and the new proposed nipple-areola position along the corrected breast meridian (Fig. 8.6). The important principles are oncological, aesthetic and minimisation of wound healing complications. Both breasts should be examined and imaged for breast tumours. All resected tissue should be sent for histological examination. She is reaching a limit for potential pregnancy but outcome goals should include the need to preserve nipple function for lactation and erogenous sensation.

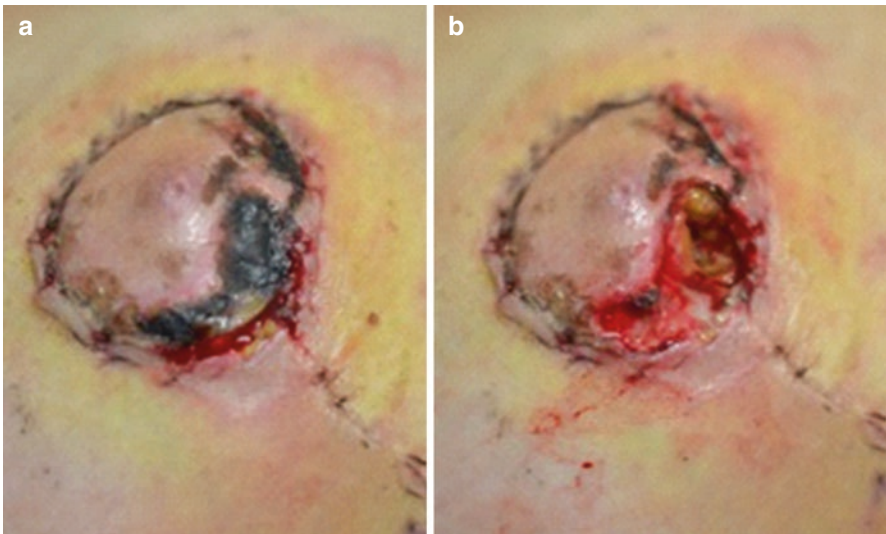


Fig. 8.7 (a) Shows early vascular insufficiency of the inferior areolar of the right NAC, and after scissor debridement in the clinic (b)

Examiners: *This is the appearance of her right nipple-areolar complex 3 weeks after bilateral breast reduction. The left nipple-areola has healed without complication. Discuss the problem and how you would manage this?*

This shows partial necrosis of the right infero-medial nipple areola complex probably due to venous insufficiency (Fig. 8.7). There may be associated partial fat necrosis. Debridement of the non-viable areola tissue has been performed in the second image. I would manage this conservatively with daily dressings, oral antibiotics and reassurance that this will heal spontaneously by secondary intention. I would maintain Micropore tape support for all her other healed breast scars and also encourage her to wear a surgical bra for support night and day for another month.

Fig. 8.8 Shows both breasts healed at 2 months post surgery



Examiners: *This is the patient's appearance two months post bilateral breast reduction with a modified Lejour vertical mammoplasty. Discuss the early result and make some comments about the aftercare of patients having breast reduction surgery?*

The breasts have now healed but the scars are still somewhat hypertrophic (Fig. 8.8). Some asymmetry remains with the left breast still being larger than the right. The absence of medial breast scars, characteristic of the Lejour vertical mammoplasty is a bonus. The early result at 2 months shows some bottoming out, but her breasts are still at least a C–D cup bra size in balance with her general body habitus.

8.4 Scenario 03 (Figs. 8.9, 8.10, 8.11, and 8.12)

Fig. 8.9 Shows the notch deformity resulting from failed local nasolabial flap repair of right nostril defect, post BCC excision



Examiners: This 74-year-old woman presents to you with a notch deformity of her right alar region. Six months previously her GP had excised a BCC close to the right alar rim and attempted repair with a superiorly-based nasolabial flap. There were questions from the pathologist about adequacy of excision margins so a redo excision was performed and subsequently the distal end of the local flap necrosed. She also has a high mid cheek scar, which appears to cross the relaxed skin tensions lines and this again was a previous local flap repair after BCC excision.

What would you recommend to improve her situation?

The first choice treatment of moderate sized nasal alar defects is an extended composite graft taken from a helical rim (Fig. 8.9). The tongue of skin in continuity with the harvested graft is de-epithelialised and buried under the side-wall of the nose to enhance the vascularisation of the graft.

A W-plasty of her anti-RSTL cheek scar could also be considered.

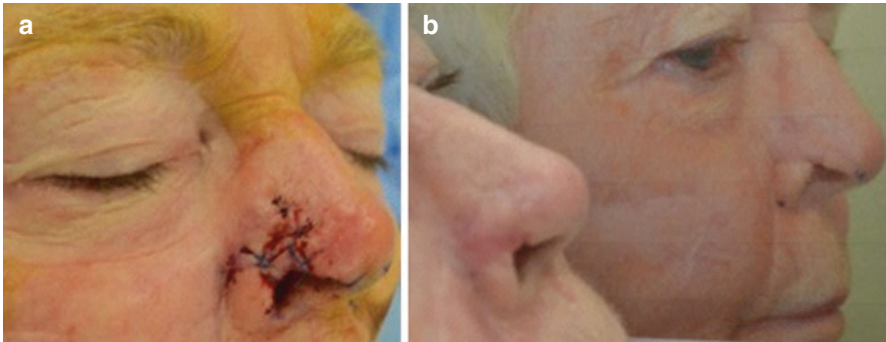


Fig. 8.10 (a) Shows attempted salvage of the poor reconstruction with an auricular composite flap. (b) shows the less than 'perfect' result. A lifeboat is needed

Examiners: A composite auricular graft has been attempted to correct the right alar notch and the result at 6 months is shown. Comment and advise?

The selected composite graft was probably inadequate in size and there has been partial failure of the graft (Fig. 8.10). Although an improvement, the final result at 6 months is still less than perfect.

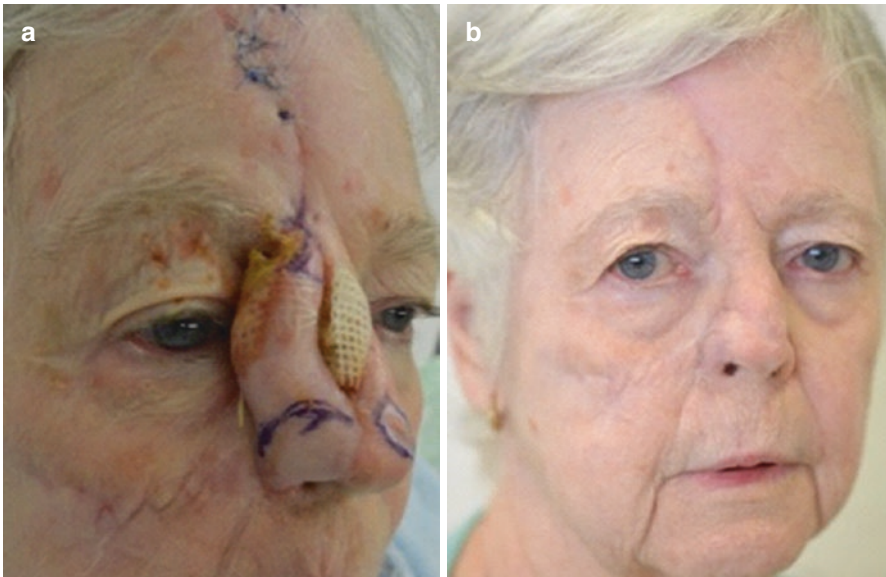


Fig. 8.11 (a) Demonstrates the right paramedian forehead flap used to salvage the right nostril reconstruction. Auricular cartilage graft was placed beneath the flap for nostril support. (b) shows early result after division and inset

Examiners: A year later after salvage with a staged paramedian forehead flap the patient is shown now aged 76 years.

Discuss the principles of staged nose reconstruction in this specific case?

Would you offer her any further revisions?

There was both tissue missing and tissue displaced in the notched right alar defect following BCC excision and only partial success of the composite graft (Fig. 8.11). Nasal reconstruction requires lining, support and cover. The internal mucosal lining of her right alar defect could be constructed with either a septal lining flap or a turnover flap from the distal end of the paramedian forehead flap. This latter flap is the ideal tissue for cover, planned in reverse and supported by a contoured conchal cartilage graft from her right ear. This would be a two-stage procedure performed under general anaesthesia with an overnight hospital stay. The second stage, to divide and inset the flap would be planned for at least 2 weeks after the first stage. A third stage may be necessary after at least 3 months to refine the aesthetic reconstruction and achieve near perfection.

This involved thinning of the forehead flap alar reconstruction and the re-creation of a neo alar crease (Fig. 8.12). A new actinic lesion in the right orbital region below the eyebrow was excised at this time (Fig. 8.12).



Fig. 8.12 Shows the immediate result after the third stage to recreate the right alar crease

8.5 Scenario 04 (Figs. 8.13, 8.14, 8.15, and 8.16)



Fig. 8.13 Shows a woman aged 49 years and ten years later when she is requesting facial rejuvenation surgery aged 59 years

Examiners: This 59-year-old woman is referred to you for facial rejuvenation. She is healthy but 5 years before after a bilateral breast reduction she developed an acute breast haematoma, which required emergency drainage and evacuation. She wants to look fresher and more youthful like she used to ten years before (Fig. 8.4a).

Discuss your management?

She looks like a good candidate for a facelift to correct her tired look and classic stigmata including: brow ptosis, dermatochalasia of her upper eyelids, tear trough deformity of the lower eyelid/mid cheek junctions, flattening and loss of convexity in her malar regions, associated atrophy of the soft tissue in her periorbital and temporal regions, early jowls and marionette lines, loose neck and loss of definition of her jawline and sternomastoid contour (Fig. 8.13). I would be concerned about the prior history of post-surgical bleeding and look into this critically as part of her pre-operative assessment. Does she have a coagulation disorder or is she taking anticoagulants? I would ask her what her motivations and expectations were. I would document a surgical plan with annotation of photographs and produce a careful informed clinical and financial consent. I would encourage her to reflect on all this in a ‘cooling down’ period of at least 4–6 weeks. I would plan to see her again at no further charge to discuss her concerns, questions and decisions whenever this suited her. I would ask if I could communicate also with her family doctor/GP who should know her well. I would show her previous facelift cases on PowerPoint, with a variety of methods and balance this with good, bad and indifferent results achieved by my hands, including actual complications.

Fig. 8.14 Shows the same patient one week after a conservative facelift with bilateral infected preauricular haematomata



Examiners: The facelift surgery including upper lid blepharoplasty is uneventful and she is discharged home the following day. She returns at 7 days post surgery complaining of bilateral wound discharge, pain and fever. She is unwell. This is the appearance of her left hemiface at 7 days. What is your impression?

What will you do next?

What will you tell the patient?

The diagnosis is bilateral infected late haematomata (Fig. 8.14). It requires urgent release and evacuation either in my clinic treatment room under local anaesthetic (if possible) or else a return to the operating theatre and general anaesthetic. I would wash out the wounds, take swabs and pack the wounds with saline + dilute Betadine soaked wet gauze swabs. I would change these daily for the next week at least. I would tell her that this is a serious complication and apologise for the inconvenience, but reassure her that I am available 24/7 and I will do everything in my skill set to salvage the situation and get her healed. I would warn her that there would be a period of regular dressings and perhaps 3–6 months down the track revision of scars. I would stress that she has paid for her surgery already and there would be no further charges from me, but hospital charges may be a possibility. I would document and photograph her progress weekly. I would inform her GP and organise specialist nurses of my practice to help with the aftercare. She would have my email, personal phone number and my secretaries personal number so that she could call us anytime. I would tell her that we are going to become the best of friends because we'll be seeing a lot of each other over the next few weeks. I would put aside extra clinic time for conversations and explanatory reassuring discussions with her and her family.

Don't go on vacation and leave this problem for another colleague to manage. Take full responsibility and don't make excuses for the complication.

Fig. 8.15 Shows the clinical situation post haematoma evacuation, washout with betadine/saline, daily dressings and oral antibiotics four weeks post her initial facelift surgery



Examiners: This is the appearance of her left hemiface at 4 weeks post bilateral facelift surgery. The right hemiface has similar granulating open wounds of the preauricular and temporal regions.

What would be your management now?

What would you tell the patient?

What is the likely outcome?

She made excellent progress in the context of a major complication (Fig. 8.15). Infection has resolved and dehisced preauricular wounds are now granulating. Hypergranulation may be a problem soon so I would be ready to add silver nitrate topically or Soframycin (antibiotic/steroid mix). I would remove any obvious permanent sutures in the depths of the wounds if they were visible. I would tell the patient that she is now a star healer and progress is as good as I could have expected. I would have conversations with her trying to ascertain if anxiety and or depression as a result of the catastrophe is an issue. I would remain positive and supportive. Serial photographs if she can bare to look at them would be documenting the recovery. I would suggest to her that sometime, we may need to investigate her haematological status more formally with more advanced clotting tests and perhaps even a clinical haematological opinion. These investigations are indicated in view of her previous history of post-surgery haematoma (breast reduction). I would continue to see her weekly or as often as she required. I would keep in touch with any attending nurses and be briefed by them. Regular follow-up reports in writing to the patient and her GP.

Fig. 8.16 Same patient healed and happy at 3 months post facelift surgery



Examiners: Same patient at 3 months post bilateral facelift with complications. What would you advise now and going forward over the next 6 – 12 months?

She is healed and looking good! (Fig. 8.16) There is some residual neck laxity and there may be a need for some maintenance procedures to the neck including the modified Fogli total neck lift of Dr. Darryll Hodgkinson in 6 months to a year, depending on her wishes. I would see her again in 2 months, then 3 months and again a year following her initial surgery. I would refer her for formal haematological assessment.

8.6 Scenario 05 (Figs. 8.17 and 8.18)

Fig. 8.17 Shows a 56-year-old woman marked up pre-surgery for a necklift



Examiners: This 56-year-old woman is marked up for a necklift only. She is concerned about her heavy neck and submental laxity. She is not concerned about her mid and upper face.

Discuss your plan for a cosmetic necklift?

This woman has attractive full contours of her upper face and attention should focus on her lower face and neck (Fig. 8.17). The dotted reference lines indicate the vertical midline, the major facial pilaster transitioning from the frontal plane to the lateral facial planes and also in the neck the level of the hyoid bone and the anterior surface landmark of sternocleidomastoid muscle. I would use a fine cannula suction-assisted liposuction technique to debulk the fat in her neck, then I would through a limited preauricular and temporal incision expose enough of SMAS and platysma to execute a SMAS/Platysma plication anchored to her deep temporal fascia with strong non-absorbable 2/0 sutures. I would manage her in a soft cervical collar for 2 weeks to restrict neck movement and I would probably use neck drains that could be removed at 24–48 h.

Fig. 8.18 Same patient one month post neck liposuction and conservative necklift, with lower lip asymmetry



Examiners: This is the same patient a month post necklift surgery. The procedure involved initial liposuction followed by a SMAS-Plasty plication with purse-string sutures anchored to her deep temporal fascia.

She is aware of asymmetry when she smiles.

What is the diagnosis?

What would you tell the patient?

How would you manage this?

The diagnosis is damage to the right marginal mandibular branch of the seventh cranial nerve with inability to depress her right lower lip (Fig. 8.18). Depressor labii inferioris muscle is the main culprit here, but depressor anguli oris is also at risk. This is either due to iatrogenic injury perioperatively, due to liposuction cannula trauma, traction injury or catching branches of the nerve with the plication sutures. Most likely it is a neuropraxic injury and will spontaneously resolve over the next 3 months. If there was no recovery by 6 months I would investigate with nerve conduction studies and EMG before planning to perform an anterior belly of digastric transfer. This facial muscle is innervated by the fifth cranial nerve. I would be completely open to the patient about what has happened, what this means and what I can do to improve the problem. Reassurance and close follow-up are the key strategies for management. The neuropraxic marginal mandibular branch nerve injury completely recovered by 3 months.

8.7 Scenario 06 (Figs. 8.19, 8.20, and 8.21)

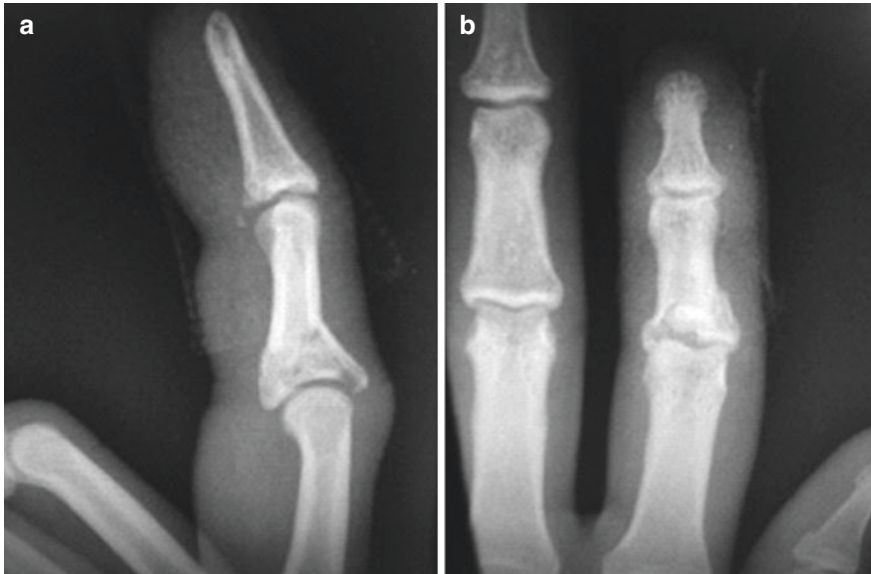
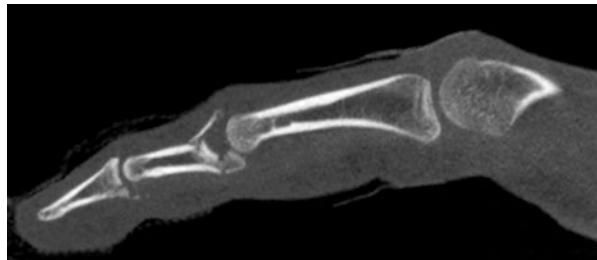


Fig. 8.19 Plain X-Ray images of the left dominant index finger of a 23-year-old cricket player who sustained a direct blow and axial compression forces, from a fast moving cricket ball, earlier in the day

Fig. 8.20 Shows the CT scan radiological appearance from a lateral view



Examiners: These are the initial plain X-Rays of a 23-year-old male cricket player who has been struck on the tip of his dominant left index finger, by the hard cricket ball, whilst trying to make a caught-and-bowled catch, close to the batsman.

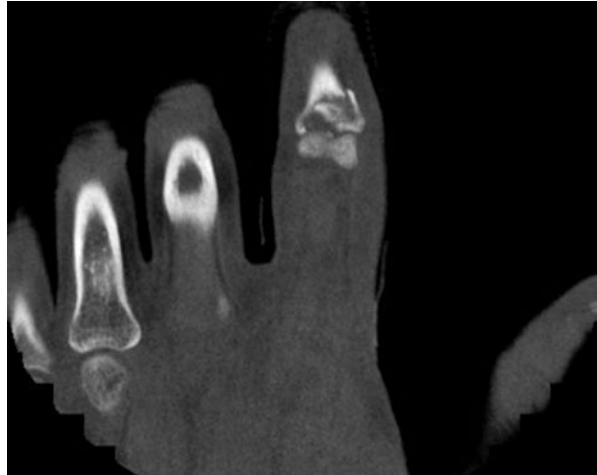
Diagnosis?

Investigations?

Management?

This is a comminuted intra-articular pilon fracture of the base of his middle phalanx and PIPJ from an axial compression force to his dominant left index finger. The DIPJ also has signs of injury, probably an avulsion fracture and dislocation, which has already been reduced. This is a severe injury and potentially a cricket career-ending injury. Expert management in a multidisciplinary of specialist hand unit is the ideal. A CT scan demonstrates the pathology.

Fig. 8.21 Shows the CT radiological view from the AP view



Selected CT scans for detail of the injury.

Discuss your management plans including post-operative rehabilitation?

What is the prognosis for him returning to first class cricket?

Surgical options include: ORIF with miniplates and screws, formal arthrodesis of the PIPJ in functional flexion or reconstruction using a distraction device (Suzuki frame) with bone grafting of the base of the middle phalanx. This latter approach preserves remaining articular cartilage fragments and once bone union is achieved an intensive programme of hand therapy and rehabilitation begins. There is perhaps a 50:50 chance of returning to top level cricket for this patient. Patient motivation and compliance probably account for 70% of the final outcome.