

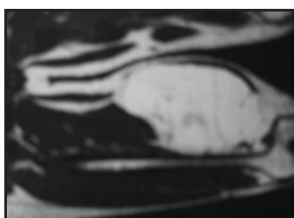
# Answers and additional information for Clinical Quiz

## Q 1.

- A1. A smooth pedunculated swelling with a biopsy scar.
- A2. Warmth, tenderness, extent (bimanually), regional glands.
- A3. Ultrasound, MRI.
- A4. Sebaceous cyst, lipoma or implanted dermoid.
- A5. Excision following biopsy.

### Benign Lipoma

A benign lipoma, a common soft tissue tumour, may remain small and slowly growing for many years. A large lipoma specially if growing more rapidly or firm in consistency, as in this case, may have malignant potential and should be excised. MRI T2 coronal section shows well demarcated tumour. Cut section shows lobulated mass of mature fat and is well capsulated.



MRI- T2 weighted imaging



Excised weighted specimen

## Q 2.

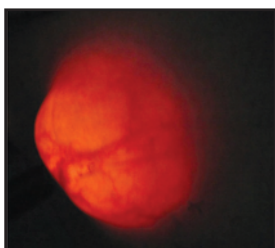
- A1. A smooth large round swelling with a small excoriated area on the top.
- A2. Warm and tender, cystic, well circumscribed, regional glands not enlarged.
- A3. Transillumination, Ultrasound, MRI.
- A4. Sebaceous cyst, lipoma or implanted dermoid.
- A5. Excision if cystic. If solid excision following biopsy.

### Sebaceous cyst

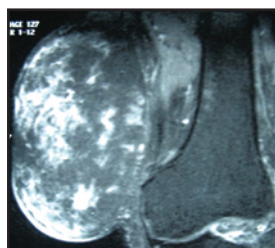
Also known as epidermoid or epidermal cyst, sebaceous cysts most often arise from swollen hair follicles. Skin trauma can also induce a cyst to form. A sac of cells is created into which keratin is secreted. These cysts are usually found on the face, neck, and trunk and near genital areas- scrotum and vulva. They are usually slow- growing, painless, often attached to skin marked by a punctum but not attached to underlying fascia.

Often small and painless, they may sometimes enlarge due to fluid or oily accumulation (from keratin degeneration) and thus become partially positive to trans-illumination as in this case. Sometimes it may get infected and become painful and tender as in this case.

Usually not needing intervention, a small cyst may disappear after application of warm padding 10- 15 minutes twice daily for about 10 days. A symptomatic or large cyst should be excised.



Transillumination positive



MRI : Coronal T1 / Stir image showing predominantly cystic lesion with some debris inside

## Q 3.

1. Figure 1 : The side profile of the face showing a zigzag coronal scar on the anterior scalp, low set ear and hairline and hypoplastic midface with receding nose and upper lip. Mandible is relatively prominent.  
Figure 2 : Complete syndactyly and synnchia. Index, middle and ring fingers are fused but thumb and little fingers are free. Palm is concave (mitten hand).
2. Apert's syndrome / Acrocephalosyndactyly.
4. Eugene Apert described the deformity in 1906.
5. An autosomal dominant condition with gene mutation in chromosome 10. The fibroblast growth factor receptor (FGFR2) is affected.

### Apert's Syndrome

Main features of this syndrome are premature fusion of cranial sutures, hypoplasia of mid face (1st-2nd branchial arch defect), and severe symmetrical complete syndactyly of hand and feet (mitten hand). As coronal suture is the one most affected, the fontanelles remain widely open to accommodate the enlarging brain. Some mental retardation may occur and the cranium appears beaked ('acrocephaly').

Early fusion of the cranial bones with base of skull bones results in receding mid face including nose, sinuses and maxilla. This results in respiratory difficulties and also overcrowding of teeth, hypertelorism and sometimes cleft palate.

Craniosynostosis may be caused by other syndromes (eg.,Crouzon syndrome) but syndactyly and other defects of upper limb distinguishes Apert's syndrome. Typically middle three fingers or toes are fused with a concave palm (mitten hand).

Early surgery to separate the fusing coronal suture may be successful. Mid face can be detached and shifted forwards (LeFort III). Gradual forward shift can also be achieved by Ilizarof technique. Separation of digits may cause some cosmetic but little functional improvement.

## Q 4.

- A1. Radiograph of pelvis shows severe osteopenia, collapse of right acetabular roof and upward displacement of head of femur, subperiosteal erosion on the femoral necks.
- A2. Classically symptoms are:
  - Moans (not feeling well)
  - Groans (gastro abdominal pain, renal colic)
  - Bones (bone pain, backache, impending fracture)
  - Stones (renal, bladder)
  - Psychiatric overtones (lethargy, weakness, memory loss)
- A3. Radiograph along with the history of renal stones makes the diagnosis of hyperparathyroidism (HPTH) clear.
- A4. Further investigations :
  - A skeletal survey may show localised lytic areas (brown tumour) and erosion of ribs etc.
  - High serum calcium, low serum organic phosphate, elevated alkaline phosphatase and high urinary calcium will differentiate hyperparathyroidism from osteomalacia.
  - Biopsy is not needed but if done, will show spindle celled tissue containing numerous osteoclast giant cells – resembling giant cell tumour- but with trabeculae of newly formed reactive bone.

### Primary hyper-parathyroidism (HPTH)

The hormone produced by parathyroid glands (PTH) controls osteoclastic activity and renal excretion of phosphates. Increased activity leads to elevated serum Ca<sup>+</sup> level and excessive renal output of Ca<sup>+</sup> and P<sup>-</sup>. Confirmatory increased PTH can be detected by immuno-assay.

A Secondary HPTH can occur whenever serum Ca<sup>+</sup> is low through PTH hyperplasia, as in renal failure leading to phosphate retention or rickets and osteomalacia of almost of any origin. ALP remains elevated.

Management: locate the parathyroid adenomas (usually single) and excise or ablate them. Less commonly in parathyroid hyperplasia partial or complete parathyroidectomy is indicated.

## Q 5.

- A1. Examination will detect synovial thickness and effusion in the knee and other symptoms of chronic arthritis (OA, RhA), Acute tenderness in the popliteal area and limited painful range of motion.
- A2. Ruptured popliteal bursa (Baker's Cyst).
- A3. Radiograph of knee will show the underlying problem. Ultrasound may detect the extent of rupture. MRI may detect fluid and blood in between muscles of the calf.

### Ruptured popliteal cyst

Management: Symptomatic until bruising disappears. The cyst should be removed with careful dissection avoiding vessels and nerves.

However unless the primary knee pathology is treated, cyst may reappear.

## Q 6.

- A1. varus deformity of midfoot and adduction of the forefoot. Ankle probably in equinus. Prominent swelling lateral aspect of heel with an healed scar just proximal to it. The leg muscles are severely atrophied. 4th and 5th toes are shorter, and the whole foot appeared smaller.
- A2. Examine the back for evidence of spinal bifida.
- A3. Pes planus deformity of right foot.
- A4. Achilles tendon lengthening and lateral column shortening. Gradual correction with Ilizarov external fixation is another option.

### Myelomeningocele

Patients with myelomeningocele usually presents with lower limb deformities and swelling over the back. Neurosurgeon are involved early to repair the spine defect and drain the intracranial fluid if there is evidence of hydrocephalus.

Orthopaedic management are mainly confined to correction of lower limb problems including foot deformities and hip dislocation. Serial manipulation can be considered for younger patients but care must be taken not to cause ulceration of the skin with reduced sensation.

