MULTIPLE CHOICE QUESTIONS IN ORTHOPAEDICS AND TRAUMA

1. Which is the strongest ligament:
A Ilio-femoral ligament
B Ischio-femoral ligament
C Pubo-femoral ligament
D Transverse acetabular ligament
E Ligamentum teres.

A Ilio-femoral ligament blends with anterior part of hip joint capsule and is the strongest ligament at hip joint.

2. Which part of quadriceps muscle is most frequently fibrosed in post injection quadriceps contracture:
A Rectus femoris
B Vastus medialis
C Vastus intermedius
D Vastus lateralis
E All of above.

D Vastus lateralis is most frequently affected probably because injections are usually given in this area of thigh.

3. Radionucleide bone scanning is most useful in:
A Avascular necrosis
B Malignancy
C Rheumatoid arthritis
D Stress fractures
E Acute osteomyelitis.

B Radionucleide bone scanning is most useful in defining extent of primary tumour, locating unsuspected metastasis and primary malignant tumour. In all other conditions mentioned its use is more of academic interest

4. Commonest cause of failure of arthrography is:
A Extra-articular injection of contrast
B Bubbling of air in the joint
C False positive interpretation
D False negative interpretation
E Allergic reaction.

A Extra-articular injection of contrast medium is the commonest cause of failure of arthrography especially in smaller and deep situated joints. Allergic reaction to contrast medium is rare but when it happens examination will have to be discontinued. Other factors also make this procedure futile.

5. Myelography is necessary in following conditions:
A Suspicion of an intraspinal tumour
B Conflicting clinical findings and C.T. scan
C Evaluation of previously operated spine
D All of above
E Some of above.

D Due to its complications and since it is an invasive technique, myelography has been replaced by CT scan. Now a days primary indications of myelography are as mentioned in the question.

6. Arthroscope was invented and first used by:
A Takagi
B Watanabe
C Dandy
D Jackson
E Patel.

A First prototype of arthroscope was made and used by Takagi in 1918. Modern day arthroscope was made by Takagi and Watanabe. Dandy, Jackson and Patcl are some of the leaders of arthroscopic surgery nowadays.

7. What is the guideline to deltopectoral groove:
A Axillary vein
B Cephalic vein
C Musculo-cutaneous nerve
D Median nerve
E None of above.

B Cephalic vein lies in deitopedoral groove and serves as landmark in identification of plane between deltoid and pectaralis major during anterior exposure of shoulder.

8. Most serious complication of arthroscopy is:
A Haemorrhage in the joint
B Damage to articular cartilage
C Compartment syndrome
D S y no vial fistula
E Breakage of instrument.

B Apart from mfection, damage to articular cartilage by arthroscope, instilments and irrigation needle is most serious complication, instrument

breakage is not the problem with newer modern day instruments. Other complications mentioned can occur but are uncommon.

9. Which of the following is most serious complication of myelography:
A Allergic reaction
B Headache
C Transient neurological deficit
D Arachnoiditis
E Neck stiffness.

B If performed in proper aseptic manner, fever is not the usual complication while all others are the dangers of myelography. These complications are fairly common with nonabsorbable, oily contrast mediums rather than with newer water soluble contrast medium.

10. What are contraindications of arthroscopy:
A Partial or complete ankylosis of joint
B Risk of introducing sepsis from a nearby skin lesion
C Major collateral ligamentous and capsular disruptions
D All of above
E Some of above.

D Introduction of infection can create disaster. In an ankylosed joint instrument can not be manouvered. Major collateral ligamentous and capsular disruptions allow irrigating solution to extravasate and make examination difficult or impossible.

11. Commonest cause of quadriceps contracture is:
A Congenital
B Ischaemic myositis
C Following femoral shaft fracture
D Following operations on thigh
E Post injection fibrosis.

E Post injection fibrosis usually occurs after repeated intramuscular injections or saline infusions in an infant. This is the commonest cause in India and other causes are less common.

12. What is the earliest indication of Volkmann's ischaemia:
A Pain
B Pallor and poor capillary filling
C Paraesthesia in median nerve area
D Contracture of fingers
E Gnagrene of tips of fingers.

A Earliest sign of vascular compromise is persistent pain which is exacerbated on passive extension of fingers. Action must be taken at this stage. Pallor, poor capillary filling, absent radial pulse and paraesthesia in median nerve area are also early signs but may not be present in every case and one should not wait for these signs. Contracture and gangrne is a very late phenomenon.

13. Which of the following is incorrect about dislocation of sternoclavicular joint:
A Anterior dislocation occurs due to indirect injury and is common type of dislocation
B Posterior dislocation is rare and occurs due to direct injury over medial end of clavicle
C Sternoclavicular dislocation is common compared to acromioclavicular dislocation
D Trachea can be compressed in posterior dislocation
E Manipulative reduction is often unstable and fixation with wire may be required.

C Dislocation of sternoclavicular joint is much less frequent than acromioclavicular joint dislocation. All other statements are true and briefly describe the salient features of sterooclavicular joint dislocation.

14. Which of the following is the earliest laboratory finding in a case of fat embolism:
A Increased serum cholestrol
B Increased serum lipase
C Increased serum fatty acids
D Lipuria
E Increased alkaline phosphatase.

D Presence of fat dropiet in urine is the earliest laboratory finding in fat embolism. But it most be remembered that the diagnosis is mainly clinical and one should not wait for any inves before instituting treatment.

15. First treatment priority in patient with multiple injuries is:
A Airway maintenance

B Bleeding control
C Circulatory volume restoration
D Splinting of fractures
E Reduction of dislocation.

A A.B.C. (Airway, bleeding and circulation) are the priorities in management of seriously injured patient in that order.

16. Which of the following fracture does not usually need open reduction and internal fixation:
A Mid shaft fracture of femur
B Pathological fractures
C Trochanteric fracture in elderly
D Displaced intra-articular fractures
E Displaced fracture of both bones of forearm in adults.

A Out of the fractures mentioned, femoral shaft fracture is least likely to need operative treatment. In this fracture operation is done to get patient out of traction early. All other fractures mentioned will almost always need open reduction and internal fixation.

17. Commonest cause of failure of internal fixation is:
A Infection
B Corrosion
C Metal reaction
D Immune deficient patient
E Stress fracture of implant.

A Most common and seriot advantage of open reduction and mfpmal fixation is infection which will ultimately lead to implant becoming loose and non-union. Immune deficient patient does not behave differently as regards fracture healing. Corrosion, metal reaction and stress fracture cf implant are rare.

18. Death 3 days after pelvic fracture is most likely to be due to:
A Haemorrhage
B Pulmonary embolism
C Fat embolism
D Respiratory distress

E Infection.

C Within first few hours after severe injuries death may occur due to hypovolaemia from haemorrhage and within 3 days from fat embolism. Pulmonary embolism usually occurs at about 3 weeks from injury. Respiratory distress is a part of fat embolism sindrome.

19. Internal fixation of fracture is contraindicated in which situation:
A Active infection
B When bone gap is present
C In epiphyseal injuries
D In compound fracture
E In pathological fracture.

A Active infection is the only definite contiaindka on of internal fixation; and in this situation ал external Охают or external immobilization is the treatment of choice. In pathological fractures and in presence of bone gap internal fixation is qmie oftea mandatory. Compound fracture is a relative contimnrlicarion.

20. Most often open reduction of fracture is required in:
A Closed fracture with nerve injury
B Compound fracture
C Fracture in children
D Unsatisfactory closed reduction
E Non union.

D Unsatisfactory closed reduction is the commonest reason for performing open reduction. Next commonest reason for this is non-union. Fractures in children rarely require open reduction. Compound fractures and fractures associated with nerve injury are also uncommon reasons.

21. In few days old fracture which of the following does not occur:
A Capillary proliferation
B Proliferation of osteogenic cells over endosteum and bone ends
C Local pH is acid
D Local pH is alkaline
E There is very little rise in level of alkaline phosphatase at fracture site.

D Upto a week after fracture local pH remains acidic and only after this period pH becomes alkaline and level of alkaline phosphatase markedly rises. All other statements are true.

22. Fracture disease can be prevented by:
A Plaster immobilization of fracture
B Cast brace treatment of fracture
C Internal fixation of fracture
D External fixation of fracture
E Physiotherapy

E Fracture disease in some measure always occurs and none of the methods of treatment of fracture can prevent it. It can only be minimised by regular physiotherapy to reduce oedema, improve muscle tone and maintain functional movements in joints which have not been immobilized.

23. Which of the following is commonest material used to make orthopaedic implant:
A Titanium
B Stainless steel
C Polyethylene (UHMWPE)
D Methyl-methacrylate
E Carbon.

B Most implants are made of stainless steel as it is comparatively cheap and can be easily cast into desired shape. Titanium is expensive and difficult to fashion into desired shape. Carbon and polyethylene implants are used only for some specific uses and methylmethacrylate is not made up into an implant as such.

24. Bone graft works by providing following mechanisms. Which of these is most important.
A Bone induction factor
B Osteogenic cells
C Living osteoblasts
D Mineral scaffold for vascular proliferation
E Bridging the bone gap.

D Provision of mineral scaffold into which newly forming vascular channels can grow is the most useful function of bone graft and that is why bank bone, heterogenous bone and homografts succeed. Bone inducing factor, osteogenic cells and living osteoblasts are supplied only by fresh autogenous grafts.

25. Commonest complication while using external fixator is:
A Pin tract infection
B Compartment syndrome
C Loosening of pins
D Fixation of muscles
E Joint stiffness.

A Pin tract infection is by far the commonest problem. In addition to complications mentioned, neurovascular damage can occur while inserting the pins and refracture can occur after removal of fixator.

26. A patient who has sustained open wound on leg is bleeding profusely. Before patient arrives in hospital the safest method to stop bleeding is:
A Elevation of leg
B Local pressure on wound and elevation of leg
C Ligation of bleeding vessel
D Use of tourniquet
E Pressure over femoral artery in groin.

B Local pressure on wound and elevation of leg is the safest and most effective method to stop bleeding. Tourniquet can be dangerous if not properly used. Elevation alone and local pressure on femoral artery is ineffective.

27. Which of the following is an absolute contraindication of open reduction:
A Active infection
B Small sized fragment
C Very soft bone
D General medical complications
E Severe scarring of adjacent soft tissues.

A Active infection is a contraindication for open reduction as this may lead to further complications and even more difficulty in salvage. In other conditions mentioned open reduction can produce problem and should not be lightly undertaken.

28. Which of the following is the best way to preserve amputated part for replantation:
A Immersion in cold saline
B Immersion in cold ringer lactate
C Immersion in cold antibiotic solution

D Dry cooling with ice
E Deep freezing.

D Dry cooling with ice is the best way to preserve amputated part as this causes least alteration of tissue structures.

29. Which of the following fracture is slowest to heal and often develops non-union:
A Intracapsular femoral neck fracture
B Scaphoid
C Lower third of tibia
D Proximal humerus
E Distal femur.

A Intracapsular femoral neck fractures are slowest to heal and develop non-union in higher percentage of cases compared to scaphoid and distal tibial fractures, both of which also tend to heal slowly due to deficient blood supply of one fragment. Proximal humerus and distal femoral fractures do not usually go to delayed union.

30. Commonest cause of failure of internal fixation of fracture is:
A Infection
B Fatigue fracture of implant
C Corrosion in implant
D Loosening of implant
E Metal reaction.

A Infection following an open operation is the commonest cause of failure following internal fixation. All other factors can also lead to complications but. statistically they are not as important

31. Chemically Plaster of Paris is:
A Calcium carbonate
B Calcium phosphate
C Calcium sulphate
D Anhydrous calcium sulphate
E Hemihydrated calcium sulphate.

E Powder of plaster of pans chemically is hemihydrated calcium sulphate.

32. Which of the following is not seen in a case of fat embolism:
A Fat globules in urine

B Left heart strain on ECG
C Snow storm appearance on chest X-Ray
D Normal carbon dioxide tension in arterial blood
E Low oxygen tension in arterial blood.

B ECG will show right heart strain and not the left heart strain.

33. Closed reduction with percutaneous K-wire fixation is best suitable for:
A Bennett fracture
B Lateral malleolus fracture
C Medial malleolus fracture
D Lateral tibial condyle fracture
E Clavicle fracture.

D Malunited fractures are the commonest cause of deformity in long bones since the incidence of fracture is much higher than congenital, developmental, metabolic, infective and neoplastic conditions.

34. In a healing fracture amount of cartilage formation increased by:
A Rigid immobilization
B Movement at fracture site
C Necrosis of bone ends
D Compression plating
E Infection.

B More the movement at fracture site, more will be cartilage formation and non union can occur. Compression plating helps in conversion of cartilage into bone and thereby fracture healing can occur in a delayed or non-union. Infection retards all the stages of fracture repair.

35. Most successful method of treatment of non-union is:
A Compression plating
B Compression by external fixator
C Addition of B.M.P.
D Bone grafting
E Electrical stimulation

D Bone grafting is most successful and useful method of treating non-union. B.M.P.(Bone morphogenetic protein) has not been isolated as yet Other three methods are suitable in certain specific situations only.

36. Which of the following muscle does not form rotator cuff of

shoulder:
A Subscapularis
B Supraspinatus
C Infraspinatus
D Teres minor
E Teres major.

E Except teres major all other muscles mentioned are closely applied to the capsule of shoulder joint and form rotator cuff.

37. What is the commonest complication of fracture of mid shaft of humerus:
A Malunion
B Non union
C Radial nerve paralysis
D Brachial artery injury
E Ulnar nerve injury.

A Most of humeral shaft fractures are treated conservatively and malunion (usually neither cosmetically disfiguring nor functionally impairing) is the commonest complication. If fracture has been treated by internal fixation this will become rare complication. Next commonest complication is radial nerve injury in spiral groove where nerve is in direct contact with bone. Non union is uncommon and brachial artery injury is rare.

38. Commonest cause of cubitus varus deformity following malunited supracondylar fracture of humerus is:
A Rotational malalignment
B Medial displacement
C Proximal displacement
D Posterior displacement
E Epiphyseal damage.

A Internal rotation deformity of distal fragment mainly contributes to cubitus varus. Second factor is medial displacement of distal fragment. Proximal and posterior displacement do not cause cubitus varus. The fracture occurs well above the epiphyses of distal humerus and epiphyseal injury does not occur.

39. Most commonly fractured bone is:
A Hamate
B Triquetrum
C Lunate
D Capitate
E Scaphoid.

E Scaphoid is most commonly injured carpal bone. Lunate is second most commonly injured carpal bone although it does not fracture but is involved in dislocation of lunate and perilunar dislocation of carpus.

40. What is the most serious complication of internal fixation of fracture of both bones of forearm:
A Infection
B Cross union
C Limitation of forearm rotation
D Refracture
E Non union.

A Development of infection following open reduction of fracture is the most serious complication. All other complications mentioned can also occur following open reduction and internal fixation.

41. Which of the following bursa produces symptoms in shoulder impingement syndrome:
A Subacromial bursa
B Subdeltoid bursa
C Bursa in relation of subscapularis tendon
D Bursa in relation to latissimus dorsi
E Bursa between coracoid process and capsule.

A Symptoms of impingement syndrome are produced when subacromial bursa is pressed between humeral head and undersurface of coraco-acromial arch.

42. What is the commonest complication of supracondyla fracture of humerus:
A Malunion
B Myositis ossificans
C Stiffness of elbow
D Volkmann's contracture
E Non union.

A Mal union, especially rotational malalignment; is the commonest complication and results in the deformity of cubitus varus. Non union is very rare and all other complications are not common, Most serious complication is Volkmann's iscnaemia.

43. What is the earliest indication of Volkmann's ischaemia:
A Pain
B Pallor and poor capillary filling
C Paraesthesia in median nerve area
D Contracture of fingers
E Gnagrene of tips of fingers.

A Earliest sign of vascular compromise is persistent pain which is exacerbated on passive extension of fingers. Action must be taken at this stage. Pallor, poor capillary filling, absent radial pulse and paraesthesia in median nerve area are also early signs but may not be present in every case and one should not wait for these signs. Contracture and gangrne is a very late phenomenon.

44. Which of the following is true about Monteggia fracture:
A It is usually associated with posterior interosseous nerve paralysis
B It can be usually treated conservatively in adults
C It is not an injury of children
D It is a combination of fracture of radius with distal radio-ulnar joint dislocation
E It is a combination of fractures of proximal ulna with dislocation

E Monteggia fracture comprises of fracture of proximal ulna with dislocation of radial head. It can occur in children. In adults most of cases will need internal fixation of ulna whereas in children most can be treated conservatively. It is also not normally associated with posterior interosseous nerve paralysis.

45. A collar and cuff bandage will be most suitable treatment for which of the following injury:
A Midshaft fracture of humerus
B Undisplaced fracture of neck of humerus
C Monteggia fracture
D Dislocation of elbow
E Fracture of radial head.

B All undisplaced humeral neck fractures at all ages and most displaced fractures in elderly can be safely treated in collar and cuff sling. All other injuries mentioned need more elaborate treatment. After reduction of elbow dislocation elbow can sometimes be immobilized in flexion in collar and cuff bandage but this is not a safe method of treatment.

46. Which of the following is not applicable to radial neck fracture:
A It is a common injury in children than adults
B Angulation can usually be reduced by manipulation
C Open reduction is sometimes required
D Mechanism of injury is fall on outstretched hand
E It is an epiphyseal injury of salter type-V.

E Radial neck fracture is an epiphyseal injury of S alter type2. In children radial head should never be excised as this will lead to reduction in length of radius, dislocation of inferior radio-ulnar joint and limitation of forearm rotation. Usually manipulation succeeds in reducing the tilt and rarely open reduction is required.

47. Which of the following statement is true about supracondylar fracture of humerus:
A Anterior displacement of distal fragment is common than posterior displacement
B Cubitus valgus is common than cubitus varus following maiunion
C Neurological complications are usually transitory
D Weakness of elbow flexion is a common complication of this injury
E Quite often elbow joint develops bony ankylosis following this injury.

C Injury to any of three major nerves can occur but it is more likely to be neurapraxia or axonotmesis. Complete division of nerve is rare. Posterior displacement of distal fragment is common and so is development of varus deformity following malunion. Weakness of elbow flexion and bony ankylosis do not occur.

48. Which of the following scaphoid fracture is most prone to develop avascular necrosis:
A Fracture of waist of scaphoid
B Fracture of tubercle
C Fracture of distal pole
D All of above
E None of above.

A Almost 90% scaphoid fractures occur through its waist. Blood supply to scaphoid enters at tubercle and in a narrow ridge at waist. Due to this peculiar arrangement of blood supply proximal half often becomes avascular after fracture at waist.

49. Pull of which of the following muscle makes it difficult to maintain reduction of Bennett's fracture:
A Flexor pollicis longus
B Flexor pollicis brevis
C Extensor pollicis longus
D Opponens pollicis
E Abductor pollicis longus.

E Following Bennett's fracture, shaft of metacarpal is displaced by the unopposed pull of abductor pollicis longus muscle.

50. Putti-Platt operation is used for:
A Non union of humerus
B Dislocation of patella
C Dislocation of radial head
D Recurrent dislocation of shoulder
E Recurrent dislocation of peroneal tendons.

D Putti-Platt operation consists of reefing of anterior capsule of shoulder joint and subscapularis muscle and is used for treatment of recurrent dislocation of shoulder. Aim of operation is to limit external rotation which causes humeral head to dislocate.

51. Best treatment for humeral neck fracture in a 60 year old patient will be:
A Collar and cuff bandage followed by physiotherapy
B Open reduction and plaster spica
C Open reduction and internal fixation
D Closed manipulation and plaster spica
E Hanging cast

A Shoulder stiffness is most serious problem than the worry about alignment (malalignment can be taken care by wide range of shoulder motion) and union (union always occurs as this is mainly cancellous bone with good vascularity). Plaster spica is contraindicted as this will make shoulder stiff and painful. Hanging cast is the treatment for humeral shaft fracture. Internal fixation of humeral neck fracture may be required rarely in displaced fractures in young age.

52. Inability to extend interphalangeal joint of thumb few weeks after Colles' fracture indicates development of:
A Compartment syndrome
B Posterior interosseous nerve palsy
C Avulsion of insertion of extensor pollicis longus
D Attrition rupture of extensor pollicis longus tendon at the site of

fracture
E Tear of extensor pollicis longus muscle belly.

D This attrition rupture is more common after undisplaced and minimally displaced Colles' fracture. Since it is attrition rupture, tendon ends are frayed and direct repair is not possible. Treatment therefore consists of transfer of extensor indicis tendon to the distal stump of extensor pollicis longus tendon. Compartment syndrome is an early complication.

53. What is the usual treatment for symptomatic old acromio-clavicular dislocation:
A Arthrodesis of acromio-clavicular joint
B K-wire fixation of joint
C Lag screw fixation of joint
D Resection of outer end of clavicle
E Acromionplasty.

D Resection of outer 1" of clavicle and capsulorraphy produces satisfactory amelioration of symptoms. Transfer of tip of coracoid with its attached muscles is next best method of treatment. K-wire and lag screw fixation are the treatment of acute dislocation. Arthrodesis of acromio-clavicular joint is almost impossible to achieve and if achieved will greatly impair the mobility of shoulder girdle. Acromionplasty is used for intractable cases of impingement syndrome

54. Regarding fracture of clavicle which of the following statement is incorrect:
A Fracture is commonest in medial third
B Non union is rare
C Most cases can be treated conservatively
D Fracture usually occurs due to indirect injury
E Fracture is common in middle third.

A Clavicle fractures usually by fall on outstretched hand and the force transmitted breaks the bone at place where two curves meet and therefore fractures are most common in the middle third of bone. All other statements about union and treatment of clavicle fracture are correct.

55. Which of the following is incorrect about dislocation of lunate:
A Dislocated lunate appears triangular instead of rectangular on A.P. x-ray
B Dislocation is most easily recognised on lateral view x-ray
C Avascular necrosis is common following dislocation

D Lunate dislocates posteriorly
E Median nerve compression can occur.

D In total dislocation of lunate the bone dislocates anteriorly and that is why median nerve can be compressed. If closed deduction fails open reduction is performed from antenor »ch Furthermore anterior approach permits spbung o ST retinaculum to decompress carpal tunnel and med,an nerve. All other statements are correct.

56. Which of the following is not applicable to scaphoid fracture:
A Mechanism of injury is fall on outstretched hand.
B It is common in adults than elderly persons
C Often non union develops
D Fracture at waist is commonest
E Avascular necrosis is rare.

E Avascular necrosis of proximal fragment is fairly common since the blood supply to this part comes in a retrograde direction and whole of proximal pole is covered by articular cartilage and does not have any place for vascular channels to enter in this part of bone.

57. Which of the following statement is true about dislocation of interphalangeal joint of finger:
A It is a flexion injury
B It is an extension injury
C Reduction is often unstable
D Distal phalanx is displaced anteriorly in relation to the proximal phalanx
E There is no need to test for stability after reduction of dislocation.

B Dislocation of interphalangeal joints is an extension injury an the distal phalanx is displaced dorsally in relation to proximo phalenx. Most often reduction is stable and its stability must ЬI checked immediately after manipulation. Unstable reducoa is usually due to associated fracture which can be recognised a x-ray and needs internal fixation.

58. What is usual treatment for symptomatic nonunion of scaphoid in a young patient:
A Drilling of fragments of scaphoid
B Drilling of fragments of scaphoid and bone grafting
C Bone grafting and excision of radial styloid
D Arthrodesis of wrist
E Excision of scaphoid.

C Bone grafting and excision of radial styloid is the usual treatment for symptomatic non-union of scaphoid. Drilling alone' is of no value. Excision of scaphoid leaves behind a weak and unstable wrist. When bone grafting has failed excision of radial styloid will relieve symptoms to a great extent. Non union of scaphoid can in long term produce radio carpal degenerative anthritis requiring arthrodesis of wrist. When non-union of scaphoid is an incidental finding with out symptoms it can be left without any treatment

59. Which of the following injury is "Gamekeeper's thumb":
A Rupture of ulnar collateral ligament of wrist
B Rupture of ulnar collateral ligament of metacarpophalangeal joint of thumb
C Rupture of ulnar collateral ligament of interphalangeal joint of thumb
D Fracture of base of thumb metacarpal
E Fracture of neck of thumb metacarpal.

B Injury occurs due to forcible abduction at metacarpophalangcal joint of thumb, and was classically described in persons wringing neck of small animals caught during hunting. Diagnosis can be confirmed by taking stress view x-rays. Partial rupture can be treated by scaphoid type plaster but for complete rupture operative repair is advisable.

60. Which of the following is not true about posterior dislocation of shoulder:
A Recurrent dislocation can develop
B Reduction can be unstable
C Patients with unreduced dislocation can have good function
D Clinical diagnosis is easy
E Axillary nerve injury is uncommon.

D Diagnosis of posterior shoulder dislocation can be often missed and is not easy both clinically and radiologically. Reduction is quite often unstable and shoulder spica is required with shoulder in abduction and external rotation. Recurrent dislocation can develop and axillary nerve injury is uncommon since posterior dislocation does not stretch the nerve which courses from posterior to anterior.

61. Commonest cause of deformity in a long bone is:
A Osteoporosis
B Rickets
C Paget's disease
D Malunited fracture
E Fibrous dysplasia.

B Local pressure on wound and elevation of leg is the safest and most effective method to stop bleeding. Tourniquet can be dangerous if not properly used. Elevation alone and local pressure on femoral artery is ineffective.

62. What is the second most important aspect in the treatment of fractures of long bones:
A Adequate nutrition of patient
B Accurate anatomical reduction
C Immobilization
D Restoration of bone alignment
E Antibiotics.

C First and foremost requisite to ensure healing of long bone fractures to restore function is the reduction of bone fragments into good alignment so that malunion does not occur. Accurate anatomical reduction is not necessary. Second important aspect is immobilization of the fracture.

63. Which deformity in malunited fracture is most likely to correct with remodelling:
A Angular deformity in the middle of diaphysis in the plane of motion of nearby joint
B Angular deformity in plane of motion of nearby joint when deformity is in metaphyseal area
C Rotational malalignment
D Angular deformity near end of bone when angulation is in a plane 90° to the plane of motion of nearby joint.
E Shortening of bone length.

B Angular deformity in the plane of motion of nearby joint has maximum potential for remodelling. Remodelling is still better if deformity is near the end of bone. The process is rapid in growin of children and slows down as the adulthood is reached. Rotations malalignment never corrects. Shortening of bone length, will the some extent correct in a growing child since the fracture induct little overgrowth in a long bone.

64. What is most important aspect of the treatment of crush syndrome involving an extremity:
A Amputation
B Fluid and electrolyte balance
C Dialysis
D Antibiotics
E Hyberbaric oxygen.

A Amputation proximal to the level of injury is the most important aspect of treatment. At the same time maintenance of fluid balance is also important. Dialysis may be required. Antibiotics really are of prophylactic value. Hyperbaric oxygen has no role.

65. In interfragmentary fixation screw works by producing:
A Compression
B Distraction
C Antiglide mechanism
D Increased shear
E None of above.

A Screw works by converting torsional stress (used during its insertion) into compressive force and this keeps fracture surfaces in close apposition. This is the basic mechanism on which screw works.

66. Basic treatment of most non-unions is:
A Compression plating
B Continuation of external splintage
C Electrical stimulation
D Bone grafting
E Phemister grafting.

D In an established non-union freshening of bone ends and bone grafting is the usual treatment. Electrical stimulation and compression plating is indicated in certain limited cases only. Phemister grafting is one method of bone grafting in cases where bone fragments are in good alignment.

67. External fixator is not indicated in:
A Comminuted fracture
B Fracture associated with severe soft tissue damage
C Infected fractures
D Simple closed fracture of humeral shaft
E Fracture associated with burns.

D Use of external fixator is contraindicated in an uncomplicated fracture. It is an indispensable method of treatment of fracture in association with infection, burn and severe soft tissue damage requiring repeated dressing and skin grafting. External fixator is also used extensively for purpose of limb lengthening.

68. Commonest cause of refracture after removal of external fixator is:

A Pin tract infection
B Fracture through pin tract
C Absence of periosteal callus
D Destressing producing cancellation of cortex
E Avascular necrosis of bone fragments.

A Pin tract infection is by far the commonest problem. In addition to complications mentioned, neurovascular damage can occur while inserting the pins and refracture can occur after removal of fixator.

69. Following femoral shaft fracture, knee stiffness occurs due to:
A Fibrosis of vastus intermedius
B Shortening of rectus femoris
C Fibrosis of patellar retinacula
D Adhesion of patella to femoral condyles
E All of above

E All the factors mentioned prevent distal excursion of patella and thereby limit knee flexion. This is why early quadriceps exercises and patellar mobilization after femoral fracture are important.

70. What is the most serious disadvantage of external fixator:
A Pin tract infection
B Loosening of pins
C Stress protection osteoporosis
D Fracture can not be compressed
E Another fracture can occur through pin tract.

A Pin tract infection is the most frequent and serious complication of use of external fixator. If a very rigid fixator assembly has been used, its removal should be in stages to overcome stress protection osteoporosis. In most good fixators it is possible to either compress or distract the fracture. Loosening of pins can be minimized by keeping the pins under compression. Later fracture through pin tract is another potentially serious problem with use of external fixator.

71. What is the best treatment for an oblique tibia! shaft fracture which has redisplaced after initial good closed reduction and plaster immobilization
A Wedging of plaster
B Remanipulation and plaster
C Open reduction and internal fixation
D Skeletal traction
E Cast bracing.

C Oblique fractures are difficult to hold in plaster and best treatment is internal fixation if reduction can not be achieved or has been lost after closed manipulation. Skeletal traction from calcaneal or supramalleolar pin is the next best option available. Traction has to be maintained for 3-4 weeks until early union has occured. At this stage when fracture is deformable but not displacable plaster or cast brace can be applied. Cast brace can not be used until there is early union of fracture.

72. Bumper fracture is the name given to:
A Fracture of tibia and fibula
B Fracture of lateral tibia! condyle
C Fracture of patella
D Fracture of lateral femoral condyle
E Fracture of tibial spine.

B Historically tibial condylar fractures have been referred to as "bumper" or "fender" fractures. But falls from height are also | common causes of these injuries.

73. Intramedullary nailing of femoral shaft fracture is contra-indicated: °
A When there is compounding
B When the fracture is transverse
C When fracture is in narrowest part of bone
D In non union in adults
E In a child.

E Intramedullary nailing is contraindicated in children because of danger of damage to growing ends of bone and also when the child grows the nail will become totally embedded deep inside bone and can not be removed. In compound fractures any internal fixation device should be used after due consideration of complications. All other indications are ideal for intramedullary nail fixation.

74. A patient develops compartment syndrome (swelling, pain and numbness) following manipulation and plaster for fracture of both bones of leg. What is the best treatment:
A Split the plaster
B Elevate the leg
C Infusion of low molecular weight dextran
D Elevate the leg after splitting the plaster
E Do operative decompression of facial compartment.

E Whenever diagnosis of compartment syndrome is confirmed (increased compartment pressure measured by transducer) or suspected; safest and best course of action is operative decompression of tight facial compartment. Any delay will produce irreversible muscle necrosis. All other treatments mentioned are an accompaniment to decompression operation!

75. Which of the following is most important step when K-nailing is done for fixation of fresh femoral shaft fractures.
A Good reaming of medullary canal to take in widest diameter nail
B No reaming of medullary canal
C Closed nailing should be done
D Bone grafting must always be done along with
E Small diameter nail should be selected.

A Adequate reaming of medullary canal to accept widest diameter nail is most important step as this increases the rigidity of fixation. After this next important step is to use a nail of proper length. Closed nailing is a difficult procedure and for practical purposes open nailing is adequate. Bone graft should be added in old fractures, comminuted fractures and non unions.

76. Which of the following is commonest complication of Colles' fracture:
A Stiffness of fingers
B Stiffness of wrist
C Stiffness of shoulder
D Subluxation of inferior radio ulnar joint with pain
E Sudeck's osteodystrophy.

A All the complications mentioned can occur after Colles' fracture but out of these stiffness of fingers is the commonest complication. Next commonest complication is malunion followed next in frequency by stiffness of shoulder. Other are less common but by no means rare. Least common complication is spontaneous rupture of extensor pollicis longus tendon. Non union is very rare.

77. Malunited Colles' fracture produces Which of the following deformity:
A Garden spade deformity
B Dinner fork deformity
C Madelung deformity
D Swan neck deformity
E Boutonniere deformity.

B Malunited Colles` fracture produces dinner fork deformity.

78. What is the usual treatment for symptomatic old acromio-clavicular dislocation:
A Arthrodesis of acromio-clavicular joint
B K-wire fixation of joint
C Lag screw fixation of joint
D Resection of outer end of clavicle
E Acromionplasty.

D Resection of outer 1" of clavicle and capsulorraphy produces satisfactory amelioration of symptoms. Transfer of Up of coracoid with its attached muscles is next best method of treatment. K-wire and lag screw fixation are the treatment of acute dislocation. Arthrodesis of acromio-clavicular joint is almost impossible to achieve and if achieved will greatly impair the mobility of shoulder girdle. Acromionplasty is used for intractable cases of impingement syndrome.

79. Regarding fracture of clavicle which of the following statement is incorrect:
A Fracture is commonest in medial third
B Non union is rare
C Most cases can be treated conservatively
D Fracture usually occurs due to indirect injury
E Fracture is common in middle third.

A Clavicle fractures usually by fall on outstretched hand and the force transmitted breaks the bone at place where two curves meet and therefore fractures are most common in the middle third of bone. All other statements about union and treatment of clavicle fracture are correct.

80. Which of the following statement is not correct about ankle fractures
A Undisplaced maleolar fracture can be satisfactorily treated by plaster immobilization
B Stress view X-Rays are required to understand full extent of injury in ankle fractures
C Accurate reduction is necessary to prevent development of osteoarthritis of ankle
D External rotation and abduction of foot is the commonest mode of ankle fractures
E Adduction injury is least common cause of ankle fractures.

B In the presence of fracture, direction and displacement of fracture line indicates mechanism and extent of injury and also indirectly indicates

presence of ligamentous damage. Stress view of ankle are important when no fracture is visible after significant injury and complete ligament rupture is suspected which *is* shown in stress view by tilt of talus and needs treatment to prevent chronic ankle instability. All other statements relating to ankle fractures are true.

81. In ankle sprain, the commonest ligament torn is:
A Tibio-talar ligament
B Deltoid ligament
C Posterior talo-fibular ligament
D Calcaneo fibular ligament
E Anterior talo-fibular ligament.

E Ankle sprain is an inversion injury and anterior talo-fibular ligament is first to be damaged. More severe injury can also damage origin of extensor digitorum brevis and calcaneo-fibular ligament.

82. Which of the following injury is called "Aviator's fracture'
A Pott's fracture
B Total dislocation of talus
C Fracture neck of metatarsal
D Subtalar dislocation
E Fracture of neck of talus.

E Sudden dorsiflexion of ankle, when aircraft crashes, produces impingement of anterior margin of distal tibia against neck of talus producing a fracture. This used to be the commonest mode of fracture of neck of talus and was therefore termed aviator's fracture. Same injury now a days quite often occurs in motorcycle and car accidents.

83. Abduction, external rotation injury produces both the Dupuytren's and Maisonneuve fracture. Which of the following injury differentiates one from the other:
A Level of fracture in medial malleolus
B Level of fracture in lateral malleolus
C Level of fracture in fibula
D Presence or absence of diastasis of inferior tibio-fibular joint
E Presence or absence of third malleolus.

C Both Dupuytren's and Maisonneuve fractures are similar injuries resulting in fracture of medial malleolus or rupture of deltoid ligament, tear in interosseous membrane, diastasis and fracture of fibula. Level of fracture in fibula differentiates one from the other. In Dupuytren's fracture fibular

fracture is in its lower third while in Maisonneuve fracture fibular fracture is located in its proximal third.

84. Concerning intra-articular fractures at knee which of the following statement is true:
A Early knee mobilization is inadvisable
B Intercondylar fracture of femur quite often leads to avascular necrosis
C Non-union of tibial condyle fracture is common
D Extraarticular adhesions play no role in producing joint stiffness
E Displaced intra-articular fractures usually need open reduction.

A A.B.C. (Airway, bleeding and circulation) are the priorities in management of seriously injured patient in that order.

85. In cases of leg fractures, above knee plaster is applied with knee slightly flexed for which of the following reason:
A To avoid stretching posterior capsule of knee joint
B To keep the cruciate ligaments relaxed
C To allow easier ambulation
D To prevent rotational movements being transmitted to the fracture site
E Plaster application is easier with knee slightly flexed.

B Local pressure on wound and elevation of leg is the safest and most effective method to stop bleeding. Tourniquet can be dangerous if not properly used. Elevation alone and local pressure on femoral artery is ineffective.

86. Which of the following fractures of femoral shaft are most suitable to internal fixation by Kuntschner nail:
A Transverse fracture of mid shaft
B Spiral fracture of mid shaft
C Oblique fracture of distal third of shaft
D Subtrochanteric fracture
E Very comminuted fracture of mid shaft.

A Intramedullary nail (K-nail) is most suitable in transverse mid shaft fractures as the medullary canal is narrow and fracture becomes very stable. Spiral and long oblique fractures are best treated by plating. Fractures of distal third are in area where medullary canal is wide and intramedullary nail fixation is not rigid. These and subtrochanteric fractures are treated by nail plate devices. Comminuted fractures do not provide all round support for K-nail and can not be treated by this method. They should either be treated conservatively or by plate fixation.

87. Best treatment for a sixty five year old patient with four week old intracapsular femoral neck fracture is:
A Internal fixation
B Internal fixation with muscle pedicle graft
C Me Murray osteotomy
D Hemireplacement arthroplasty
E Total Hip replacement.

D In old patients irrespective of the duration since injury hemireplacement arthroplasty is the procedure of choice as the patient can be mobilized early, thus avoiding general complications of immobilization. In old fracture internal fixation is ineffective. Internal fixation with muscle pedicle graft is useful procedure as it induces vascularity to aid in fracture union and also restores normal anatomy. With this operation and also with Me Murray osteotomy weight bearing has to be delayed for many months and therefore these operations are used only in younger patients.

88. Which of the following is preferable treatment for six weeks old intrascapular fracture of femoral neck in a thirty five year old man:
A Hemireplacement arthroplasty
B Me Murray Osteotomy
C Smith Peterson Nailing
D Moore's pin fixation
E Plaster spica.

B In an old intracapsular femoral neck fracture any form of external immobilization is of no use. Internal fixation is suitable in fresh fractures when neck is not absorbed and fracture surfaces are fresh. After three weeks some absorption of fractured ends starts and accurate reduction is not possible. At this stage Me Murray osteotomy is most useful procedure as it will increase the vascularity, reduce stress on fracture line and does not need accurate alignment of fractured ends.

89. Which of following is the commonest cause of loose body in the knee joint.
A Tibial spine fracture
B Osteochondritis dissecans
C Intra-articular fractures
D Synovial osteochondromatosis
E Torn meniscus.

E Statistically torn meniscus is the commonest cause of loose body in the knee joint Fractures and osteochondritis dissecans are second and third common causes of intra-articular loose body.

90. Which of the following is most true about displaced intercondylar fracture (T-Y fracture) of distal femur:
A Can be treated adequately by skin traction
B It should be accurately reduced and internally fixed
C Following good reduction and fixation there is no danger of knee stiffness
D Non union is not uncommon
E Percutaneous pin fixation is best treatment.

B This fracture results in disruption of articular surface and should be accurately reduced and internally fixed. Skeletal traction may at times suffice for undisplaced fracture. These fractures can not be satisfactorily reduced by closed manipulation and therefore percutaneous pin fixation is not possible. Pin fixation will also not be so strong as to start early knee movements which is important due to danger of knee stiffness which can be quite severe inspite of accurate reduction. Non union is rare as the fracture occurs in area of abundant cancellous bone with good blood supply.

91. What is true about supracondylar fractures of femur:
A Distal fragment tilts posteriorly due to pull of gastrocnemius
B Distal fragment tilts anteriorly due to pull of quadriceps
C Can be treated quite well by K-nailing
D Can usually be treated with Russell traction
E Can be complicated by injury to sciatic nerve.

A Gastrocnemius pulls the distal fragment and its upper end tilts posteriorly and malunion in this position will cause genu recurvatum deformity. It can be treated conservatively by reduction and traction with knee in 45° flexion, and for this reason Russel traction and traction on Thomas' splint with knee straight are useless. Best treatment for these fractures is internal fixation with angled blade plate appliance or Ender nails.

92. Which of the following is not seen in intracapsular fracture of femoral neck.
A Collapse of head after union of fracture
B Mai union with more than 3" of shortening
C Avascular necrosis of femoral head
D Non union
E Missed diagnosis.

B If the fracture has united shortening is only due to coxa vara and is usually not excessive. Diagnosis of undisplaced, impacted fracture can be missed on clinical examination since the patient can move the hip with little discomfort and may at times be able to walk also. Non union and avascular necrosis are well known complications and their incidence is approximately 25% each. Although fracture can unite but still enough of blood supply to femoral head may have been jeopardized to produce avascular necrosis which in turn can lead to collapse of femoral head.

93. Shenton line is broken in all of following except:
A Posterior dislocation of hip
B Impacted fracture of femoral neck
C Congenital dislocation of hip
D Pathological dislocation of hip
E Tom Smith arthritis.

B Shenton line will be broken in all cases when head is displaced away from acetabulum (dislocation) due to any aetiology. It will not be broken in undisplaced impacted femoral neck fractures.

94. For a distended knee joint which of the following position is most comfortable:
A Full extension
B 30° flexion
C 60° flexion
D 90° flexion
E 120° flexion.

B In 30° flexion, knee joint has maximum capacity and pressure of contained fluid or blood is minimum and consequently there is least pain. Capacity of knee joint decreases and pain thereby increases when the knee is fully extended or flexed more than 30°-45°.

95. Which of the following is true about acute rupture of tendc calcaneus (tendo-achillis):
A It occurs due to direct injury
B Radiograph will confirm the diagnosis
C Compression of calf muscles produces planterflexion of ankle
D It usually occurs in middle aged persons
E Surgical repair is unnecessary.

D This is injury of middle aged persons usually occuring due to unaccustomed exercise. Direct injury is not the cause of tendon | rupture although most patients feel as if something has hit. X-Rays are of no value in diagnosis. Planterflexion of ankle on compression of calf occurs when the

tendon is intact and its absence signifies tendon rupture. Surgical repair is preferable treatment.

96. Stability of knee joint depends mainly on:
A Bony configuration
B Muscles
C Ligaments
D Tendons
E Menisci.

C In knee as well as other joints like interphalangeal, wrist and intervertebral joint stability mainly depends on ligaments. In ball and socket joint like hip, stability is provided by bony configuration. In very mobile shoulder joint main stabilizing structures are muscles. Menisci and tendons do not contribute significantly to stability.

97. Complete rupture of tendo calcaneus is best treated by:
A Physiotherapy
B Arthrodesis of ankle and subtalar joint
C Raised shoe
D Tendon transfer
E Surgical exploration and repair.

E Rupture of tendo-achillis whether spontaneons or traumatic should be treated by surgical repair as soon as possible after injury. Ununited tendon produces severe disability in walking as the push off is lost. If repaired later fascial or tendon graft has to be used to bridge the gap and post operative recovery is slow and end result is less than perfect.

98. In ankle sprain, the commonest ligament torn is:
A Tibio-talar ligament
B Deltoid ligament
C Posterior talo-fibular ligament
D Calcaneo fibular ligament
E Anterior talo-fibular ligament.

E Ankle sprain is an inversion injury and anterior talo-fibular ligament is first to be damaged. More severe injury can also damage origin of extensor digitorum brevis and calcaneo-fibular ligament.

99. Which of the following statement is not true about fracture of patella.
A Even undisplaced fractures require patellectomy

B Quadriceps expansion may be intact in direct injury
C Quadriceps expansion is ruptured when gap is palpable between patellar fragments
D Knee can not be actively extend if quadriceps expansion is ruptured
E Displaced patellar fractures require operative treatment.

A Undisplaced fractures do not have significant roughening oi articular surface and quadriceps mechanism also remains intact therefore patellectomy is not indicated. Operation is required to repair quadriceps expansion and to either realign and fix displaced patellar fragments if a reasonably smooth articular surface can be restored, or to excise pateilar fragments when fracture is so comminuted that patellar articular surface will remain rough.

100. Which of the following statement is not true about severe varus strain injury of knee:
A Usually no specific treatment is required
B Fracture of head of fibula should arouse suspicion of this injury
C Lateral popliteal nerve can be damaged
D Stress radiographs are required to confirm the diagnosis
E Plain X-ray can be normal even in the presence of extensive damage.

A If the injury is severe operative repair of torn structures (lateral collateral ligament, lateral capsule and biceps femoris) is required followed by plaster immobilization with knee 30 degrees flexed. X-ray may quite often be normal or may only show avulsion fracture of head of fibula. Stress radiographs or examination under anaesthesia will reveal full extent of damage. Lateral popliteal nerve can also be damaged due to traction injury.

101. How does paralytic scoliosis differ from idiopathic scoliosis:
A Progress of curve stops after maturity
B Scoliosis can progress even after maturity
C Curves are usually short
D Bracing is quite effective in controlling progress
E Curve never becomes very severe.

B Asymmetrical paralysis of paraspinal muscles produces paralytic scoliosis. Curve can develop and progress even after maturity, is usually long and can become very severe. Bracing is not as effective in controlling paralytic scoliosis as it is in controlling paralytic scoliosis.

102. In myelomeningocele scoliosis occurs due to:
A Asymmetrical paralysis of spinal and abdominal muscles

B Congenital deformities of vertebrae
C Fixed pelvic obliquity
D Any of above
E None of above.

D In addition to causes mentioned, scoliosis can also occur due to static forces of chronic malposture necessitated by paralysis or by a period of recumbency for care of frequently reclining ischial or trochanteric pressure sores.

103. Before surgery, forcible correction of severe scoliosis curve can be achieved by:

A Halter traction
B Halo-pelvic traction
C Turnbuckle cast
D Riser jacket
E Cotrel cast.

A Halter traction does not provide enough force to correct a severe scoliosis deformity, for which any of the other mentioned methods can be used.

104. Commonest late complication of spinal fusion in scoliosis is:
A Recurrence of deformity
B Pseudoarthrosis
C Neurological deficit
D All of above
E None of above.

B Pseudoarthrosis is the commonest complication and this in some cases leads to development of recurrence of deformity.