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6. OBSERVATIONS (PART 7)

12. DETAILS OF ORGANS INVOLVED (Cont'd)

(i) LARGE INTESTINE

Large bowel was involved in 9.02% cases of abdominal and pelvic trauma, of which 81.82% were due to blunt trauma and 18.18% due to penetrating injuries of the abdomen and pelvis as shown in Table-XII(i). All cases of non-penetrating trauma were due to vehicular accidents. In two cases of penetrating trauma category, stab injury and firearm injury accounted for one case each. Laceration of large bowel was observed in all the eleven cases. Majority of cases (72.73%) were due to injury to all the parts of large bowel, followed by transverse colon (18.18%)

(j) GALL BLADDER

Injury to gall bladder was noticed in two cases (1.64%) out of the total 122 cases of abdominal and pelvic trauma as shown Table-XII(j). Both the cases suffered blunt trauma caused by road traffic accident and showed laceration/rupture injury with leakage of bile into the peritoneal cavity.

(k) HAEMORRHAGES INCLUDING MENSENTRY AND VASCULAR INJURIES

(i) Peritoneal and Retro-peritoneal Haemorrhage

Peritoneal haemorrhage was found in 86.06% of total number of cases of abdominal and pelvic injuries, of which 93.33% cases were due to blunt trauma and 6.67% cases were due to penetrating trauma, as shown in Table-XII (k-1) and (k-2). Majority of cases (86.73%) of blunt trauma were due to vehicular accidents. Stab injury and firearm injury was noticed in five and two cases of penetrating trauma injuries respectively. Majority of the peritoneal haemorrhage cases were due to combined liver and spleen injuries (36.19%) followed by injuries to liver alone (35.24%).

Retro-peritoneal haemorrhage was noticed in 4.92% of total cases of abdominal and pelvic trauma, of which the majority of the retro-peritoneal haematoma cases were due to pelvic fractures (50%) followed by injuries to mesentery (33.33%) as shown in Table-XII (k-3) and (k-4). Majority of retro-peritoneal haemorrhage cases (83.33%) were caused by automobile accidents. Both sides iliopsoas muscle showed contusion haematoma in 3 cases (2.46%) out of total 122 cases caused by blunt trauma (vehicular accidents).

(ii) Mesentery

Mesentery, including mesocolon, was involved in 31.97% of total cases of abdominal and pelvic trauma as shown in Table-XII (k-5). Penetrating injuries were responsible for 7.69% of cases while 92.31% cases occurred due to blunt force impact. Majority of the blunt trauma cases (88.89%) were caused by vehicular accidents. Stabs and firearms accounted for two cases and one case respectively out of total three penetrating trauma cases. Contusion of mesentery was observed in 61.54% cases while 17.95% cases showed laceration of the mesentery. Combined contusion and laceration injury was noticed in 20.51% cases. 35.90% of mesenteric injuries were found associated with ruptures of bowel.

(iii) Vascular Injuries

Vascular injuries were observed in 4.92% of total cases of abdominal and pelvic trauma, of which 83.33% cases were due to blunt trauma and 16.67% cases were due to penetrating trauma, as shown in Table-XII (k-6). All blunt trauma injuries were due to vehicular accidents. The most common injury pattern observed was combined injury of abdominal aorta and inferior vena cava with their respective branches in 66.67% cases. 50% of the cases showed peritoneal haemorrhage and burst open injury of the peritoneal cavity was observed in remaining 50% of the cases. Of the total six cases, three were spot dead, one was brought dead and remaining two cases had survival period 8-1/2 hours and 1-1/2 days respectively.

(l) GENITO-URINARY INJURIES

Genito-urinary injuries were found in 47.54% of total cases of abdominal and pelvic trauma.

(i) Kidneys

Kidneys were involved in 29.51% of total cases of abdominal and pelvic injuries, of which 91.67% cases occurred due to blunt trauma and 8.33% cases occurred as a result of penetrating abdominal trauma, as shown in Table-XII (l-1). Majority of blunt trauma cases (78.79%) were due to vehicular accidents. Stab injury and firearm injury accounted for 66.67% and 33.33% cases out of total three penetrating trauma cases. The right kidney was involved in majority of cases (44.44%). The most common kidney injury noticed was plain laceration injury alone (47.22% cases).

(ii) Urinary Bladder

Urinary bladder was involved in 12.29% cases of abdominal and pelvic trauma and all these cases were due to blunt trauma, viz., automobile accidents, as shown in Table-XII (l-2). All cases were associated with pelvic fractures. The most common bladder injury observed was plain laceration injury alone (73.33% cases).

(iii) Urethral Injuries

Urethral ruptures were observed in five cases (4.10%) of abdominal and pelvic trauma as a result of blunt trauma (vehicular accidents), as shown in table-XII (l-3). Multiple pelvic fractures and pubic symphysis fracture separation were found associated in one case of urethral rupture each (20%,

each). Three cases of urethral injuries (60%) showed combination of both multiple pelvic fractures and fracture separation of the pubic symphysis.

(iv) Uterus

Uterus was involved in 8.33% cases of female victims of abdominal and pelvic trauma as shown in Table-XII (l-4). Uterus injury was due to blunt trauma as a result of vehicular accident. This case showed complete transection of the uterus which was found lying in the pelvic cavity and was observed to be associated with pelvic fractures.

(v) Ovaries

Ovaries were involved in 8.33% of female victims of abdominal and pelvic trauma as shown in Table-XII (l-4). This case was produced by blunt trauma as a result of vehicular accident. Crush injury of both sides ovaries was present in the case associated with multiple pelvic fractures.

(m) SKELETAL INJURIES

(i) Pelvic Bone Injuries

Pelvic bone fractures were observed in 47.54% cases. It was second to liver in incidence out of all abdominal and pelvic visceral injuries. All cases of fracture pelvis were caused by the blunt trauma. Majority of the blunt trauma cases (94.83%) were caused by vehicular accidents, followed by fall from height in 5.17% cases. The most common pattern of pelvic fracture injuries observed was combined right and left side pelvis fractures (44.83%) followed by right pelvis fractures in 32.76% cases and left pelvis fractures in 15.52% cases. Fracture separation of pubic symphysis was noticed in four cases (6.9%). Incidence of various types/combinations of pelvic bone injuries in 58 cases of pelvic fractures is shown in Table-XII (m-1). The most common combination of pelvic bone injuries observed was multiple pelvic fractures plus pubic symphysis fracture separation plus sacroiliac joint fracture dislocation in 18.96% of the cases as shown in Table- XII (m-2). 15.52% of the cases (9 cases) showed crush injury of the pelvis. Of these nine cases, three were spot dead, two were brought dead and the rest four cases had survival period ranging from 1-1/2 to 3-1/2 hours.

(ii) Vertebral Injuries

Fractures of lumbar spine were observed in 5.74% cases of which 71.43% cases were due to blunt trauma and 28.57% cases were due to penetrating trauma. Majority of blunt trauma cases (80%) were caused by vehicular accidents followed by collapse of roof in 20% of the cases. In two cases of penetrating trauma category, stab injury and firearm injury accounted for one case each. The most common fracture dislocation level found was L1 in 40% of the cases. The incidence and type of lumbar vertebral column injuries is shown in Table-XII (m-3).

Fracture of sacrum was observed in two cases (1.64%) as a result of blunt trauma caused by vehicular accidents as shown in Table-XII(m-4). One of the case had associated avulsed lacerated wound of the perineal region.

(n) CAUSES OF DEATH FOLLOWING ABDOMINAL AND PELVIC TRAUMA

Various causes of death following abdominal and pelvic trauma are given in Table-XII (n) and Figure-VIII. The most common cause of death observed was haemorrhagic shock (as a result of massive intra-abdominal bleeding) in 51.64% of the cases followed by combined haemorrhagic shock and head injury in 40.98% of the cases. Septicaemia was noticed as cause of death in three cases (2.46%).

(o) INJURY SEVERITY SCORING (ISS)

The overall ISS range from 13-75 with the mean of 44. Out of 100 vehicular accidents, 21 cases were spot dead (mean ISS = 69.62), 24 cases were brought dead (mean ISS=51.5), 10 cases were dead within 2 hours (mean ISS=47.2) and 20 cases were dead between 2-6 hours (mean ISS=40.05). The relationship of the ISS score with survival period is shown in Table-V (b). It was found that patients with low ISS had longer survival period. One of the cases with ISS-13 had a long survival period of more than two months.