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MATERIALS AND METHODS

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MATERIALS AND METHODS

The Study was conducted on bodies coming for medicolegal postmortem examination to mortuary of Department of forensic medicine, Maulana Azad Medical College and associated hospitals during a period of March, 2000 to April, 2001.

CRITERIA FOR SELECTION OF CASES

1. **All cases of head injuries which have a definite history of trauma would be taken for the study.**
2. **All the cases which show multiple injuries to the body along with head injuries would be taken for study.**
3. **Decomposed bodies and bodies with no specific history would not be included in the study.**
4. **104 cases were studied. This study would included**
   - a) **Detailed history taking both regarding the incident and complete clinical history including operative procedures, if any.**
   - b) **Detailed external examination including the height, weight, sex, age etc. and a complete list of all the external injuries on the body.**

MATERIALS USED

1. **Inquest papers and other relevant police documents**
2. **Magnifying glass and measuring tape**
3. **Photographic equipment**
4. **Autopsy table and instruments**

POSTMORTEM REPORTS:

1. 18 gauge needle, 20cc syringe, Indian ink .

Autopsy examination :

A detailed medicolegal postmortem examination was conducted in each case as per Virchow's method.

DISSECTION OF SKULL AND BRAIN :

The body lies flat on the back over the autopsy table. A wooden block is placed under the shoulder so that the neck is extended as much as possible. The head is also rested on the a wooden headrest. The scalp is incised in a semicircular fashion from ear to ear over the vertex, behind the mastoid process taking care to part the hair on either side of the incision to avoid cutting large mass of hair. The anterior flap of the scalp is then reflected forward up to the superciliary ridges and the posterior flap backwards to the occipital protuberance. At this stage, details of any injuries underneath the scalp are recorded. Some of the scalp injuries missed initially may now be revealed. There may be patechial haemorrhages, collection of clotted blood and the bruises which may be visible only on the deep surface may indicate the number and direction of impacts. The exposed part of the skull is examined for evidence of fractures. When a depressed fracture is present, its dimensions and contour should be recorded with precision; these may lead to the identification of the object causing the fracture.

The temporalis muscle is incised about its middle on each side and reflected. The skull cap is removed by sawing with a circular electric saw through the bones up to the inner table, the time of severance following a point just above the superciliary ridges in front and through the occiput behind and preferably making an angle of 120o between the anterior and posterior cuts. The removal of skull cap is facilitated by gently inserting and twisting the chisel at various places through the cuts taking care not to produce any post mortem fracture or extend existing ones, and to avoid any damage to the meninges and brain. Once the skull cap is removed, it should be examined for separation of sutures and for fractures by holding against light and also tapping it gently on the table. The duramater is examined for extradural haemorrhage and if present, its weight and volume determined. The superior sagittal sinus is examined for the presence of antemortem thrombus. An antemortem thrombus in this could lead to back pressure in the bridging veins crossing the subdural space and ending in subdural haemorrhage. Fragmentation of blood stream in the meningeal arteries may be due to systemic or arterial air embolism. The duramater is then removed by cutting along the line of severed skull cap and pulling it gently from front to back while cutting falx cerebri. Careful removal of the dura may reveal subdural or subarachnoid haemorrhage. The weight and volume of the former is measured and an external assessment of the brain made as regarding flattening, asymmetry, oedema or shrinkage.

The brain is removed by inserting four fingers of the left hand between the frontal lobes and the skull and drawing them backwards and cutting with the knife in the right hand the nerves, the pituitary stalk and the vessels as they emerge from the skull, beginning with those in the front and extending the right hand the nerves, the pituitary stalk and the vessels as they emerge from the skull, beginning with those in the front and extending to those at the back. The tentorium is also cut along the posteior border of the petrous bone taking care not to injure the cerebellum. The brain is throughout supported by the left hand. The knife is introduced into the occipital foramen and all the structures are cut as far below as possible, without damaging the medulla oblongata. The right

hand grasps the cerebellum and the brain is removed from the cranial cavity, weighed and transferred to a clean dish for examination and dissection. If any intracranial haemorrhage is present the blood is collected and measured. The dura is pulled out from the floor of the skull by holding it with a piece of cotton or gauze, as it is very slippery on gloved hands. The base of skull and rest of the cranial cavity is examined for fractures and tested for any abnormal mobility. The fracture of anterior cranial fossa manifests itself by escape of blood and cerebrospinal fluid from the nose, and middle cranial fossa by escape of blood and cerebrospinal fluid from the ear. Since fracture of the posterior cranial fossa and ring fracture are followed by escape of blood and cerebrospinal fluid in the tissues of the neck, they may not be suspected in certain cases and would be missed unless dura is pulled out from the floor of the skull and the posterior cranial fossa carefully examined.

The brain is examined for the patechiae, any injury, disease, inflammatory reaction or herniation. In all cases of subarachnoid haemorrhage without apparent trauma the cerebral vasculature should be scrutinized with special reference to the Circle of Willis. The Circle of Willis was studied grossly as well as after perfusion with Indian ink to pinpoint/locate the site of damage.

After external examination of the brain, the cerebellum is separated at the pons transversely just below the cerebral peduncles. Cerebellum is cut through the vermis, and with one oblique cut through each hemisphere and examined. The whole brain stem is sectioned transversely at intervals of few millimeters and examined.

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