

CASE REPORT

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An Unusual Penetrating Head Wound by a Yard Broom and its Medicolegal Aspects

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ABSTRACT: A fatal case of a homicidal penetrating head injury by a blunt object (yard broom) is described. A piece of wood penetrated the skull and remained in the intracranial cavity resulting in infection. The need of careful examination of the head injury is emphasized.

KEYWORDS: pathology and biology, jurisprudence, injuries

It has truly been said that no injury of the head is too trivial to be ignored or so serious as to be despaired of. Head injuries are common and account for about one fourth of all deaths as a result of violence [1].

Trauma as a general rule carries medicolegal implications; head injury adds complexity to the problem, for the reason that the full effects of the trauma cannot be completely evaluated until some time has elapsed after the alleged injury [2,3]. Tedeshi further states that any scalp lesion, even if minor, may constitute important medicolegal evidence. Careful exposure and examination of the cranium may confirm the impression received from a wound in the scalp.

This paper reports a case in which a man who was beaten with a yard broom received a penetrating injury to the head. A piece of wood from the back of the broom broke and penetrated into the cranial cavity and remained embedded in the frontal lobe of the brain. This resulted in infection (meningitis and brain abscess), as a consequence of which the victim died. Two persons were charged for murder. A question arose during the trial whether the deceased was the victim of murder or negligent conduct of the duty doctor at the district health center.

Case Report

Clinical History

A 28-year-old man was brought one afternoon in August 1976 to the Toco Health Centre in an alert and conscious state with a history of having received injuries from blows by fist,

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and the back of a yard broom. On examination there were two injuries: a lacerated wound on the vertex of the left side of the head and a small bruise on the front of the left arm. The head wound was sutured and ATS was given. The patient was sent home with advice to have an X-ray of the head at the district hospital of Sangre-grande.

After about 4 h, the patient developed a high fever (40°C [104°F]) and intense headache. He was brought back in a semiconscious state to the doctor of the health center who prescribed luminal and referred the patient to the district hospital for admission. Next day he was admitted to the district hospital and his condition further deteriorated and he became unconscious during this stay of 24 h. Later he was transferred to the Neurosurgery Department of the General Hospital, Port-of-Spain. Clinical examination was suggestive of a case of intracranial infection and compression. X-ray revealed a fracture but no foreign body. The patient died two days after admission. Next day, an autopsy was performed by the author on the order of the Coroner.

Autopsy Findings

The autopsy findings included the following:

External—1. A sutured wound (5 cm) on the vertex of the left side of the head (frontal) near the midline. Removal of the sutures revealed that wound was lacerated and there was a defect (2 by 0.5 cm) in the left frontal bone of the skull, 1.5 cm from the midline and 1.6 cm below the coronal suture. A piece of wood was seen penetrating the cranial cavity through the defect (Fig. 1). 2. Contusion (5 by 4 cm) on the front of the left arm.

Internal—Scalp hematoma overlying the vault of skull.

Skull and its contents—defect in the frontal bone of skull was associated with inversion of inner table of the left frontal bone (depressed fracture). There was a small amount of clotted blood around the piece of wood causing it to adhere to dural membrane. The piece of wood had penetrated the meninges and remained in the left frontal lobe of the brain (Fig. 2).

Meninges were grossly congested and purulent, with a collection of pus in subdural space and around the piece of wood. The brain matter around the piece of wood was softened. Rest of brain was congested and edematous.

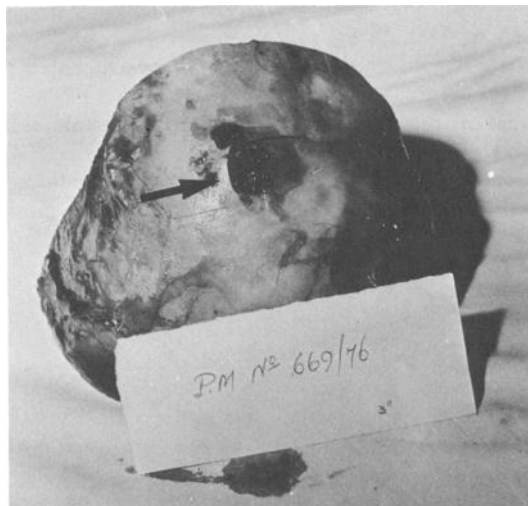


FIG. 1—Defect in the frontal bone through which a piece of wood is externally visible.



FIG. 2—Inner surface of skull bone showing a piece of wood projecting inward from the defect in the frontal bone.

The piece of wood (9 by 1.2 cm) was taken out from the brain substance and sent to the Forensic Science Laboratory of Ministry of Health for matching with the yard broom alleged to have been used in this offence.

Other organs—findings not remarkable.

Cause of death—Death was due to suppurative meningitis and brain abscess arising as a consequence of a penetrating head wound by a piece of wood.

Report of Forensic Science Laboratory

The laboratory reported that the piece of wood projecting inward from the skull originally formed a part of the back of broom and that the back of broom and the piece of wood were of same type of wood.

Medicolegal Problems

Two persons were charged with murder punishable with death. Charge specified that the cause of death was intracranial infection caused by blunt trauma to the head. The trial lasted for six days in Assize court. The health center doctor and author were called to give evidence in this case.

It is important at this stage to note that nothing was mentioned about the defect (fracture) in the frontal bone in the medical report of doctor of health center, which was submitted to the Magistrate's Court in the preliminary hearing. During trial in Assizes court, the health center doctor asserted that he examined the wound on the head carefully and found nothing in the cranium.

The author was cross-examined at length on the following two medicolegal questions relevant to this case:

1. Would careful and thorough examination of head injury by the health center doctor have enabled him to detect the piece of wood or not?
2. Could the patient's life have been saved if piece of wood was removed in time?

On the basis of autopsy findings and scientific reasonings, I opined that:

1. Piece of wood could have been detected by careful search, as I could do it myself as soon as the sutures were removed from the lacerated wound.
2. The frontal lobe that was penetrated by the piece of wood is not a vital part of the brain and there was no significant intracranial bleeding. Hence removal of the piece of wood in time followed by heavy doses of antibiotics could have saved his life, that is, the deceased had a good chance of survival.

A jury of twelve returned a unanimous verdict of "not guilty." Presumably, the jurors were convinced by the arguments of the defense lawyer that the deceased died as a consequence of negligent conduct of the doctor of health center.

Discussion

In the past, attention of medical officers has been drawn to the medicolegal problems that have been caused by the improper/incomplete examination of a wound. This case illustrates the problem of incomplete examination of a wound and also the relationship between trauma and infection.

It has long been recognized that meningitis may complicate the head injury. Tedeshi [2,3] states "both epidural and subdural abscess (empyema) usually arises in conjunction with open penetrating wound. The same source of infection leading to a circumscribed empyema in subdural or epidural space may give rise to leptomeningitis. In most wound infections, the incubation period is short ranging from a few hours to a few days." In this context, it is worthwhile to mention the following quotation "Penetrating injuries produced by sticks are always to be regarded very seriously" [4].

It is well known that frontal lobe injury may result in impairment of social behavior. Frontal lobectomy is done as a therapeutic measure for certain psychiatric conditions [5]. One still wonders whether the outcome of this case could not have been different if the health center doctor had examined the case carefully and skillfully and referred the case to General Hospital for necessary treatment in time. Quite possibly the piece of wood could have been removed in time leading to survival of the patient.

Conclusions

This type of case once again highlights the following.

1. Any wound, especially in the head, needs careful and thorough examination and should never be dealt with casually by the doctor. A patient with a head injury must be kept under careful and continuous observation for at least 12 h and preferably 24 h.
2. When a wound is present, there is a risk if the treatment is limited to local measures alone.
3. Radiographs (X-ray) may not reveal any foreign bodies that are radiolucent.

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References

- [1] Polson, C. J. and Gee, D. J., "Injuries of Specific Regions (Head Injuries)," *Essentials of Forensic Medicine*, 3rd ed., Pergamon, Oxford, pp. 156-157.
- [2] Tedeshi, C. G., Eckert, W. G., and Tedeschi, L. G., "The Wound," *Forensic Medicine*, Vol. 1, W. B. Saunders Co., Philadelphia, 1977, pp. 9-11.
- [3] Tedeshi, C. G., Eckert, W. G., and Tedeschi, L. G., "The Head and Spine," *Forensic Medicine*, Vol. 1, W. B. Saunders Co., Philadelphia, 1977, pp. 29-45.
- [4] Bailey, H. and Lowe, M., "The Head (Scalp, Skull and Brain)," *Short Practice of Surgery*, 17th ed., Rains and Ritchie, Eds., H. K. Lewis and Co., London, p. 418.
- [5] Schmidt, R. F., "Integrative Functions of Neurophysiology," *Fundamentals of Neurophysiology*, 2nd ed., Springer-Verlag, New York, pp. 306-307.

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