ORIGINAL RESEARCH PAPER
Volume - 13 | Issue - 08 | August - 2024 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

IMPALEMENT INJURY LEADING TO HOLLOW VISCUS PERFORATION

General Surgery

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KEYWORDS

Impalement injury, trauma, transverse colostomy, stoma, iron rod

Impalement injuries are defined as collision with great force of an elongated object through the body (1,2). Such type of injuries are very rare in terms of various types of object that have been seen impaled at different anatomical locations and so each case is different from one another, We hereby present a case of impalement injury of the abdomen with an iron rod as such injuries in every case requires critical management in terms of assessing the injury and management however the presence of an impaled object should not alter the provision of basic trauma care (1).

Case- 30 year old male was rushed to the emergency department with history of fall from around 5 feet height through a window when he accidently got impaled by an iron rod. On arrival, the rod was in situ and he was awake and alert with Glasgow coma score of 15, pulse rate of 50 per minute and blood pressure of 100/60mm Hg and maintaining saturation on room air . On examination an iron rod of approximately 1 cm in diameter was seen protruding from the right flank region with parts of clothing stuck at the entry point and no exit wound visible. Abdomen was soft, non distended with diffuse guarding present. On respiratory system examination bilateral air entry equal with no added sounds. He had sensory and motor sensations of all extremeties intact. efast done in the emergency department was suggestive of Metallic foregin body (Rod) that could be traced from it's insertion upto the left Hypochondrium and no obvious free fluid noted in the abdomen or pelvis.

All laboratory investigations were within normal limits.

On XRAY abdomen, opaque rod like foreign body was seen reaching the left hypochondrium and no air under diaphragm noted. After initial resuscitation and optimization Exploratory laparotomy was planned. On exploration the rod was found to be perforating the middle segment of transverse colon with no solid organ, vascular or spinal injuries. No leak of colonic content was noted and rest of the hollow viscera and mesentery appeared normal. Under supervision the rod was withdrawn. Since the rod appeared contaminated and perforating the transverse colon, hence edges of the perforated site were refreshed and loop transverse colostomy was done. Post operatively the patient was shifted to critical care and started on antibiotic treatment and was closely monitored for hemodynamic stability and post operative infections but none occurred. Stoma started functioning from post operative day 2 and so was started on oral diet . On the basis of vital parameters patient was shifted to high dependency unit and later shifted to ward on post operative day 4. No delayed complications were noted. Patient was discharged on post operative day 10 with no further complains.

Discussion:

Impalement injuries as usually uncommon and hence a detailed discussion about such cases would help in management of similar case. The surgical approach should be well considered before making an incision and forethought given to providing wide exposure for complete visualization of the route of the impaled object and its relationship to adjacent vital structures (1).

Generous debridement and irrigation are required and the early use of broad spectrum antibiotics along with tetanus prophylaxis is recommended (1,4) as was done in our case . The impaled object in our case was an iron rod which can lead to several secondary infections and hence thorough intra-abdominal wash with antibiotics cover was given. Current practice permits careful shortening of the external aspects of the impaled object if it will facilitate transport or surgical positioning, or if it will decrease the risk of accidental dislodgement (1), however in our case the patient was immediately brought to the emergency department with the whole rod in situ thereby preventing any further injury intraabdominally. The impaling object is considered to cause a tamponade effect on the organs through which it has penetrated, thereby preventing bleeding following trauma (6). Pre-operative studies should be limited in terms of doing investigations that are deemed most necessary such as hemogram and plain radiographs. Also the importance of urgent cross match and availability of blood components come into play. Initial hemodynamics status assessment along with the amount of blood loss requires aggressive resuscitation by the time the patient is being shifted for the surgical management (6).

Only after complete exploration and absolute vascular control should the impaled object be removed under direct visulalisation using care to avoid further injury (8). Fortunately the patient did not have injury to the inferior vena cava or aorta although such injuries are well known (7).

Follow up of such cases is deemed necessary as surgical site infection and further management, like stoma reversal planning is done on further evaluation of the patient condition. Follow up with the patient is completed and till now. The patient remains vitally stable with stoma functioning well with weight gain of around 5kgs and hence is planned for stoma reversal after 3 months.

Figure 1 – iron rod seen insitu on arrival.

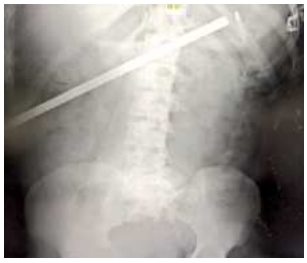

Figure 2- XRAY abdomen showing the rod

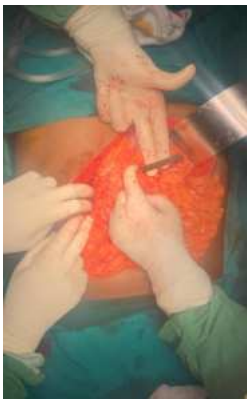

Figure 3- intraoperative image showing rod perforating the transverse colon.

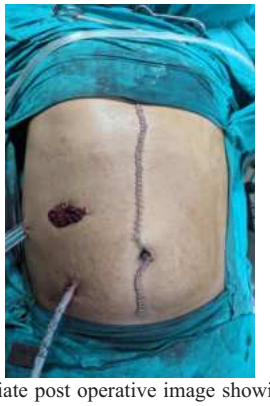

Figure 4- immediate post operative image showing loop colostomy with drains in situ

Figure 5 – iron rod after removal

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