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An unusual vaginal injury in a young primigravida patient: A rare case report

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ABSTRACT

INTRODUCTION: Assault with iron made belan causing penetration of it into vagina and perforation of posterior fornix is extremely rare. The commonly used weapon in assault are knife, wood, iron stick, wire, bomb or gun and most commonly affected body parts are cheek, throat, back, abdomen, chest wall and extremities.

PRESENTATION OF CASE: We report a case of iron made belan penetrated into vagina with posterior fornix perforation and mesenteric tear in a 30 years old lady with history of pregnancy of 14 weeks. She was haemodynamically unstable at the time of presentation. She was treated with advanced trauma life support Protocol (ATLS), taken to operation room where iron made belan was removed with repair of posterior fornix and mesentery was done.

DISCUSSION: Assault to genital organ in female is not uncommon. In present case the offender used the metallic iron made belan for assault which is the house hold material in India. In such situation high degree of suspicion and diagnostic modality are helpful to save the golden hour of patient and save the life of patients. General principles of trauma management is really very helpful to save the life threatening conditions. Urgent exploratory laparotomy with control of bleeding and repair of damaged structures are the cornerstone steps to manage such cases.

CONCLUSION: Assault with iron made belan and its penetration inside vagina is extremely rare mode of injury. Timely intervention, concept of ATLS and definitive surgical interventions are the key steps in managing such patient.

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1. Introduction

Assault or violence causing injury over the body is not uncommon. Usually the weapons used in assault are knife, wood or iron stick, wire, arrow, bomb and even gun or pistol. The most commonly affected body part in physical assault are cheek, throat, back, abdomen, chest wall and extremities. The attack with iron made belan causing penetration of it into vagina and reaching up to erector spine group of muscles with perforation of posterior fornix is extremely rare and is the first case to be reported as per my best knowledge. This condition is so rare it can be correlated by the fact that not even a single meta-analysis done on posterior fornix tear by iron like weapon after assault till date. Our aim to report this case

is to increase the diagnostic and interventional awareness among the surgeons. This case has been reported in line with the SCARE 2018 criteria [1].

2. Presentation of case

A 30 years old lady with a history of amenorrhoea for 14 weeks came to emergency department (ED) of tertiary centre after assault by her neighbour who was mentally sick. The assault was done with an iron made belan, which was inserted into vagina. On presentation she was irritable and her airway was threatened, Breathing was spontaneous, respiratory rate was 18 per minutes, SPO2 was 96% on room air, pulse rate was 142 per minutes, Blood pressure was 80/50 mmHg, GCS was 8 and patient's body temperature was low. On secondary survey it was found that an iron rod like structure was inserted into the vagina (Fig. 1). Her body mass index was 23 kg/meter². There was no significant drug history, past illness, family history, or psychosocial history. On considering all these clinical findings, ATLS Protocol was started to stabilize the patient in ED. All blood investigations were within normal limit

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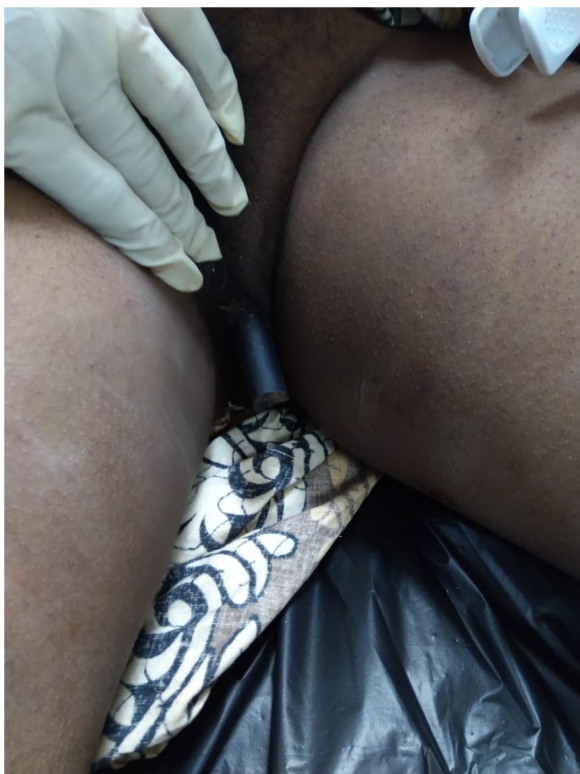


Fig. 1. Showing Iron rod inserted into vagina.



Fig. 3. Showing removed Iron made belan.



Fig. 2. Showing inserted iron rod with Foley's catheter in situ.



Fig. 4. Showing rent in posterior fornix.

except low haemoglobin (7.4 gm/dl) and Arterial blood gas analysis showed the features of acidosis. The Focused assessment Sonography for trauma (FAST) was done which showed free fluid in pelvis and also emphasized the presence of foetal heart sound. A differential diagnosis of haemoperitoneum with bladder, bowel or uterine perforation was suspected. As airway was threatened due to low GCS, she was intubated to secure the airway. In view of low blood pressure, two large bore cannula was inserted for the infusion of 2L ringer's lactate and all minor lacerated wounds were sutured. The Ryle's tube and Foley's catheter were inserted (Fig. 2). In view to consider unstable haemodynamic status, free fluid present in pelvis, penetrating iron belan inside vagina with history of 14 weeks of pregnancy, the patient was immediately shifted to operation room (OR). Abdomen was opened by midline incision. There was haemoperitoneum more in pelvic cavity and source of bleeding was from mesenteric tear which was repaired and haemostasis

achieved. The uterus was intact but on further exploration on its posterior side, the iron rod was felt to be implanted into the erector spine group of muscles. The rod was removed vaginally which was almost in the shape of belan (Fig. 3). There was 4 cm rent in posterior fornix (Fig. 4) which was repaired in double layers. All other solid organs was examined and no injury was found. After securing the haemostasis and examine all the rest gastrointestinal tract, the abdomen was closed in layers. All these operative interventions were done by an associate professor with 10 years of specialised training. Patient was shifted to intensive care unit without extubation and broad spectrum antibiotics coverage was also started. The other post-operative instructions were keep the patient nil per orally till bowel sound appears as well patient wean from ventilator, injectable proton pump inhibitors, non-steroid anti-inflammatory drugs, paracetamol infusion and intravenous fluid. Two units PRBC (O+VE) was given intraoperatively and 1

PRBC in the post-operative period. On third postoperative day tracheostomy was done. On 5th postoperative day, case was reviewed with bed side ultrasound and foetal demise was confirmed, so medical abortion was planned in view to consider intra uterine foetal death (14 weeks). Tab mifepristone (200 mg) orally through Ryle's tube and then 36 h later, tab misoprostol (200 mg) was started intravaginally every 6 hourly. A female abortus of weight 350 g expelled vaginally on 7th post-operative day. Placenta weighing around 50 g which was sent for histopathological study and foetus was sent for autopsy. Because of foetal demise and abortion, the post-operative recovery was delayed and patient was managed in ICU itself up to 9th post-operative day. On 10th post-operative day, the patient was shifted to general ward with tracheostomy tube in place. Tracheostomy tube was removed on 15th post-operative day. Patient was maintaining saturation (99% Spo2 in room air). On 18th post-operative day she was discharged. Patient was absolutely fine at 6 months of follow-up. She shared her experience as "I am so grateful to the trauma team who have operated and save my life otherwise I would have not remain alive and boost-up my psychological level to start the normal life".

3. Discussion

Assault to genital organ in female is not uncommon. Most of time such assault is reported by health care provider [2]. The genital injury resulting from sexual assault has been an area of interest to the scientific and health care community since the 1970s [3]. In 30% of cases, sexual assault happened by two or more male persons in the evening time [2]. But in present case attack was done by single male in early morning. The location of genital injury after assault may be external or internal [4]. The external injury may be classified as TEARS which describes like Tears, Ecchymosis, Abrasion, Redness and Swelling [5,6]. One more classification given by Biggs et al. which includes no perforating soft-tissue injury, lacerations, or current bleeding [7]. But the tears classification is more in practice to assess the pattern of genital injury after assault. As per National Crime Victimization Survey, 1993–2001, weapon was used only in 15% cases of assault and use of blunt object as a weapon was extremely rare which was reported even less than in 1% cases [8]. In present case the weapon used was iron made belan which is in fact the first case of sexual assault caused by such weapon. Susan B et al. in his report mentioned that any type of weapon if someone is keeping in their house is associated with greater risk of violence and multiple negative outcomes for victims [9]. In present case the offender used the metallic iron made belan for assault which is the house hold material in India. Using gun as weapon is less harmful as compared with non-gun weapons because in case of gun, abuser dominates and intimidates his intimate partner [10]. In our case the extent of injury was so severe and penetration of iron made belan was up to the sacral prominentary, causing tear in posterior fornix and mesentery. In all published case series it has been found that the most common locations of genital injury in adult female is posterior fourchette followed by labia minora, hymen and fossa navicularis [11–13]. Injury with such weapons may be presented overtly or in a concealed way [14–16]. In the concealed variety as the impaling object typically penetrated inside the body and may not attract attention until the development of life-threatening complications [15]. In such situation high degree of suspicion and diagnostic modality are helpful to save the golden hour of patient and save the life of patients. General principles of trauma as per ATLS protocol is really very helpful to manage airway, breathing and circulation to manage the life threatening conditions [16]. Removal of impaled object inside the body is absolutely not recommended as it may cause exsanguinating haemorrhage. In fact removal of such object should be carried out under direct vision preferably in oper-

ation room as in our case [17,18]. In sick patient the pre-hospital care is very important to establish the airway, breathing and circulation before taking the patient to OR for definitive management. Urgent exploratory laparotomy with control of bleeding and repair of damaged structures are the cornerstone steps to manage such cases. The psychiatric consultations is the important approach as a part of rehabilitation in post-operative period.

4. Conclusion

Assault with iron made belan and its penetration inside vagina is extremely rare mode of injury. Timely intervention, concept of ATLS and definitive surgical interventions are the key steps in managing such patient. The secondary survey is very important to assess the extent of injury with such a rare weapon.

Conflicts of interest

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Ethical approval

There is no ethical approval was obtained as it's a case report.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Dr Anil Kumar: study concept, design, writing the paper.

Dr Shiv Shankar Paswan: Operated the case.

Dr Anita Paswan: data collection, writing the paper.

Tushar Anand: revising it critically for important intellectual content.

Registration of research studies

Our paper is a case report, no registration was done for it.

Guarantor

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Patient's perspective

"I am so grateful to the trauma team who have operated and save my life otherwise I would have not remain alive and boost-up my psychological level to start the normal life".

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