Antemortem radiological imaging findings in a fatal tyre blast injury due to shock wave: a case report

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Abstract: Fatal tyre blast injuries are rare and occur due to primary blast injury from shock wave or due to dislodged iron-locking rim. We report here the radiological imaging findings in a case of fatal injury caused by shock wave from the stationary truck tyre blast.

Key Words: tyre blast, primary blast injury, radiological imaging.

Injury due to tyre blast can occur by two mechanisms: due to a dislodged loose iron-locking rim of the tyre which acts like a missile hitting the victim with extreme impacting force causing multiple injuries or due to shock wave. Tyre blast injuries are not so common and more rare as a primary fatal blast injury. We report here the radiological imaging findings of a fatal injury due to shock waves from the blast of a stationary truck.

CASE REPORT

A 32 years old female patient was admitted with a history of acute pain abdomen and chest following tyre blast from a stationary truck 2-3 hours back. No external injuries were noted. There was no history of loss of consciousness, seizures or vomiting. Glasgow coma scale was 15/15, chest auscultation was clear. Cardiovascular examination was normal. Generalized tenderness with mild distension of abdomen was noted. Ultrasound examination of the abdomen showed a large hemoperitoneum (confirmed by diagnostic tapping) (Fig. 1A) with splenic laceration (1-3cm) (Fig. 1B).

A lesion was also seen in the posterior uterine myometrium measuring 5.8 cm x 6.5 cm (Fig. 1C) suggestive for an intramural hematoma. Chest X ray showed multiple bilateral rib fracture; however, both lung fields showed no obvious lung lesion (Fig. 1D). There was no pleural effusion. The patient was immediately taken for emergency exploratory laparotomy. Lacerations in the spleen and hemoperitoneum were confirmed. No obvious uterine injury was seen intraoperatively; however, possibility of an intramyometrial injury could not be ruled out. Splenic artery with vein ligation and splenectomy were performed.

However, the patient deteriorated in the next few days with increasing respiratory distress and finally succumbed to her injury, possibly due to multiple bleeding points caused by shock wave blast injury.

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DISCUSSION

Fatal tyre blast injuries have been reported by some authors [1, 2], occurring because of the loose iron-locking rim that acts like a missile, causing multiple injuries. A search of the English literature using the Medline database on tyre blast injuries, showed that it is associated with high mortality (19%) mainly due to head injuries [3]. According to our knowledge fatal injury due to shock wave from stationary truck tyre blast has not been reported.

In our case the injury was a primary blast injury caused by a shock wave and movement of air causing damage like blunt injuries.

CONCLUSION

We therefore would like to conclude that tyre blast injuries can be fatal. A search for internal injuries caused by shock wave is important in all types of blast injuries.

References