SHORT REPORT

Thyroid storm induced by trauma due to spear fishing-gun trident impaction in the neck

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A rare case of thyroid storm induced by thyroid gland injury because of penetrating neck trauma is reported. The injury was because of a spear fishing-gun trident impaction in the neck. The diagnosis of thyroid gland injury was suspected by preoperative clinical examination and established during neck exploration in the theatre. The gland injury led to thyroid storm owing to the rupture of acini and liberation of T₄ into the bloodstream. Withdrawal of the impacted trident along with subtotal thyroid lobectomy and repair of soft tissue damage in addition to supported treatments, which corrected the hyperthyroid state, led to uneventful recovery.

Penetrating neck traumas after traffic or other accidents are commonly encountered and usually fatal, because of airway obstruction or disruption of major vascular structures in the neck and upper mediastinum.¹ Although penetrating trauma to the larynx and trachea is relatively common in neck injuries, isolated thyroid gland trauma is extremely rare.^{2–3} Furthermore, trauma-induced thyroid storm is rarely reported.^{4–5} We describe a case of spear fishing-gun trident impaction in the neck resulting in thyroid storm as a consequence of rupture of acini and liberation of T₄ into the bloodstream.

CASE REPORT

A 32-year-old fisherman was admitted to the emergency department with a spear fishing-gun trident impacted in the right part of his neck. The accident occurred during diving while the fisherman was spearfishing. On arrival, 50 min after the accident, the patient experienced nausea and vomiting. The physical examination was remarkable for low-grade fever (37.9°C), tachycardia (125 pulses/min), high blood pressure

(165/105 mm Hg), facial abrasions and a tremor, whereas no respiratory problems were encountered. A diagnosis of possible thyroid storm was made, immediate blood tests were ordered and initial medical and supported treatments were induced and directed at stabilising the patient, correcting the hyperthyroid state and managing the systemic decompensation. Simultaneously, the neck wound was inspected by separating the wound edges in an effort to remove the trident from the trauma; however, this manoeuvre was unsuccessful. Plain roentgenograms of the neck showed no larynx or trachea injury. The patient was carried immediately to the theatre, where neck exploration confirmed soft tissue injuries and right thyroid lobe lacerations. No larynx, trachea or great vessels trauma was noticed. The patient underwent a subtotal right thyroid lobectomy. The trident was withdrawn along with the damaged right thyroid lobe, and repair of soft tissue was made (fig 1). The blood test results showed high thyroid hormone levels. Postoperative recovery was uneventful, as thyroid storm symptoms were overcoming.

DISCUSSION

Neck trauma owing to vehicle accident may result in bony, muscular, nervous, vascular and aerodigestive tract injury.⁶ However, only sporadic case reports referring to extensive rupture of thyroid gland after neck trauma have been encountered.⁷

The diagnosis of isolated thyroid gland injury owing to penetrating neck trauma is difficult. The onset of life-threatening symptoms (severe respiratory distress) usually leads to urgent invasive airway management (orotracheal intubation or tracheostomy) before definite diagnosis of thyroid gland injury, which is established after direct exploration.^{6–7} Furthermore, few patients may present with thyroid storm symptoms owing to rupture of acini in the damaged gland tissue and liberation of T₄ into the bloodstream.^{4–5}

In conclusion, we report a rare case of thyroid storm after isolated thyroid gland injury due to spear fishing-gun trident impaction in the neck. The diagnosis was suspected by physical examination, and established after blood test results and neck exploration in the theatre. Withdrawal of the impacted trident, resection of the damaged thyroid lobe and soft tissue repair was performed, in addition to supported treatments, which stabilised the patient, correcting the hyperthyroid state and managing the systemic decompensation.

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Figure 1 Spear fishing-gun trident.

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