

The case of the missing carotid artery – a well aimed knife!

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Abstract

A 20-year-old male presented with a small stab wound to the neck and with haemodynamic signs of significant haemorrhage, but no signs of local bleeding. On exploration, an intact vagus nerve and internal jugular vein were found, but the common carotid artery was not immediately apparent. Careful dissection confirmed a completely transected common carotid artery with the two ends contracted and retracted. A primary repair was performed and post-operatively the patient recovered completely and had no neurological deficit.

Key words: Carotid artery diseases; Wounds, stab

Introduction

Different approaches to the management of penetrating neck injuries have been advocated. These range from expectant conservative management through to investigation with angiography and to neck exploration in every case (George *et al.*, 1991). The most frequent serious injury is to the common carotid artery, with laceration or partial transection being by far the most common finding. Complete carotid transection is rare (Rubio *et al.*, 1974). Associated injury of the internal jugular and/or vagus nerve is commonly found (Thal *et al.*, 1974). The prognosis has been found to be considerably worse in patients who present with shock or with pre-operative neurological signs (Ramadan *et al.*, 1995).

Case report

A 20-year-old man was found collapsed for an unknown period of time at the street side after having been assaulted and stabbed. On presentation to the Accident and Emergency Department, he was deeply cyanosed with a respiratory rate of 60/minute, but had bilateral air entry. He was tachycardic (140 beats/min) and hypotensive (blood pressure = 90/48 mmHg). He was localizing to pain but had no verbal or eye responses. On examination, he was found to have a 1 cm long incisional neck wound midway over the left sternocleidomastoid muscle (Figure 1), and a large 8 cm incisional wound of the scalp overlying the left parieto-occipital region.

The patient was intubated using inhalation induction. Venous access was established and the patient was resuscitated with 1000 ml of gelofusine and 2 litres of Hartmann's solution. Subsequently his haemodynamic parameters normalized. The patient was catheterized. Skull and lateral cervical spine X-rays were normal.

The patient was transferred to theatre for immediate exploration of the neck wound. Laryngoscopy and hypopharyngoscopy were performed and no evidence of haematoma or a breach of the mucosa was seen. Two separate wound tracks were noted, one superficial to the sternocleidomastoid muscle passing inferiorly, and another

much smaller wound track extending medially through the sternocleidomastoid muscle itself. The tract passed close to the carotid sheath, and extended to the body of the fourth cervical vertebra which was chipped. An intact vagus nerve and internal jugular vein were identified, but the common carotid artery was not immediately found. A large impacted haematoma, lying beneath the internal jugular vein, was carefully explored and this revealed the two ends of a completely transected common carotid artery, separated by an 8 cm gap. The lower end was found behind the clavicle, and the upper end at the level of the body of the hyoid bone (Figure 2).

Control of the proximal and distal segments of the transected common carotid artery was secured and the lacerated ends were trimmed. Thrombectomy of both proximal and distal segments was performed. The ends were then anastomosed primarily with a vein patch obtained from the lower end of the right saphenous vein.

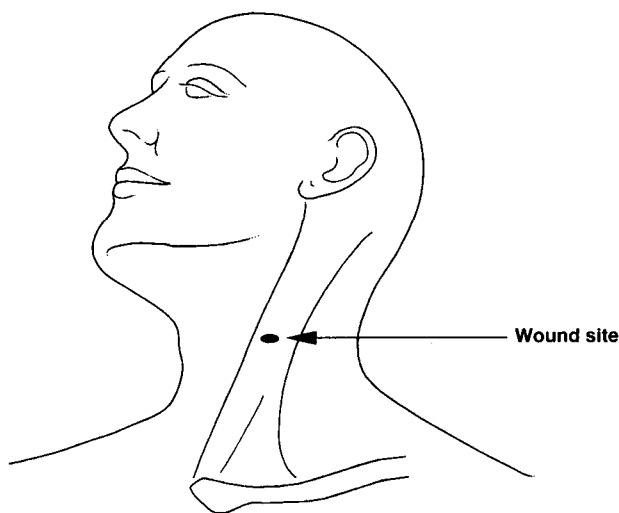


FIG. 1
Site of stab wound.

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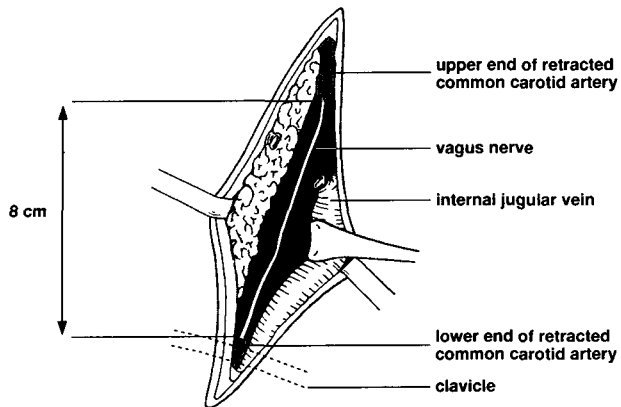


FIG. 2
Findings at exploration.

Good blood flow was obtained at the end of the procedure. A drain was inserted and the wound was closed with clips.

The patient recovered fully with no residual neurological deficit and he was discharged five days after the operation.

Discussion

The importance of exploration of a penetrating neck wound in the presence of haemodynamic signs of blood loss, despite the absence of local signs of active bleeding, is clearly illustrated in this case history. The patient had a very small incisional wound and there was no bleeding or expanding haematoma on presentation. Exposure and inspection of the major blood vessels was nevertheless performed, and the very serious vascular injury detected and repaired. Interestingly, a complete common carotid artery transection in the presence of an intact vagus nerve and internal jugular vein was found.

Evidence in the literature (Ramadan *et al.*, 1995) supports repair of the vascular injury, if at all possible, regardless of the extent of injury and pre-operative neurological state.

Conclusion

Always explore a penetrating neck injury in the presence of signs of significant blood loss, even if the patient is stable and there is no evidence of continued bleeding. A thorough exploration of all wound tracks should be carried out and inspection of the major blood vessels should be undertaken. Repair of carotid artery injuries should be attempted, regardless of pre-operative morbidity and neurological state.

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