

Thrombosis of internal jugular vein associated with acute parotitis

E. HADJIHANNAS, M.B., CH.B., K. W. KESSE, F.R.C.S.(ED.), A. P. D'E MEREDITH, F.R.C.S., D.L.O.

Abstract

We report a case of thrombosis of the right internal jugular vein associated with right parotitis. The literature is briefly reviewed.

Key words: Jugular Veins; Venous Thrombosis; Parotitis

Introduction

Jugular vein thrombosis has previously been reported in association with radical neck dissection,^{1,2} intravenous drug use,³ central vein catheterization,⁴ hypercoagulability associated malignancy,⁵ neck injury⁶ and deep head and neck infection.⁷ A case of thrombosis of the right internal jugular vein associated with right acute parotitis is presented.

Case report

A 46-year-old lady presented to our ENT department with a two weeks history of a painful swelling in her right parotid region. She initially received two courses of antibiotics from her GP without improvement.

Examination revealed an obvious right parotid swelling which was red, warm and tender (Figure 1). Trismus was also present. Ear, nose and throat examination was



(a)



(b)

FIG. 1

The swelling in the right parotid space.

From the Department of Otolaryngology, Conquest Hospital, St Leonards-on-Sea, UK.
Accepted for publication: 15 April 2000.

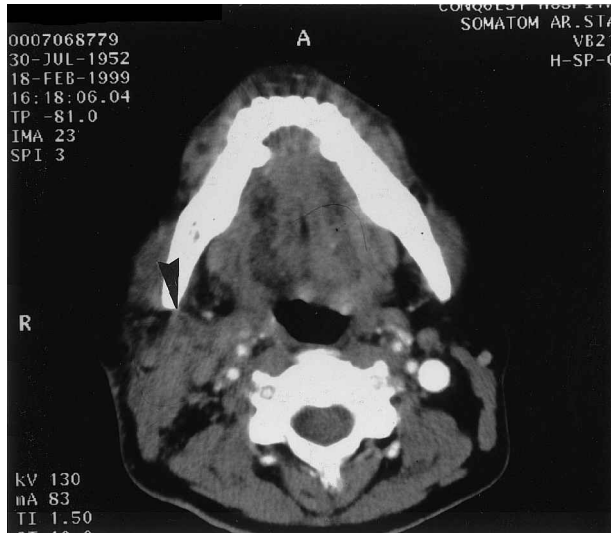


FIG. 2

Axial CT scan of the parotid region showing extensive inflammation involving predominantly the deep region of the parotid and the parotid space with the associated inflammatory mass encircling a thrombosed internal jugular vein.

unremarkable and the facial nerve was intact. She was started on IV Antibiotics and an ultrasound scan of the right parotid showed gross swelling of the gland but no focal abscess or fluid collection. Right cervical adenopathy was also noted. Forty-eight hours after commencing intravenous antibiotics the swelling extended further down into the right side of her neck and CT scan of the neck was arranged. It showed extensive inflammatory change involving predominantly the deep lobe of the parotid and the parotid space with an associated inflammatory mass which was encircling a thrombosed internal jugular vein on the same right side (Figure 2). Within the posterior aspects of the sternocleidomastoid muscle there were some subtle low density areas which may have represented early abscess formation. There was no obvious calculus in the parotid duct. A chest X-ray was reported as normal. Bacterial cultures did not show any growth and viral titres were negative.

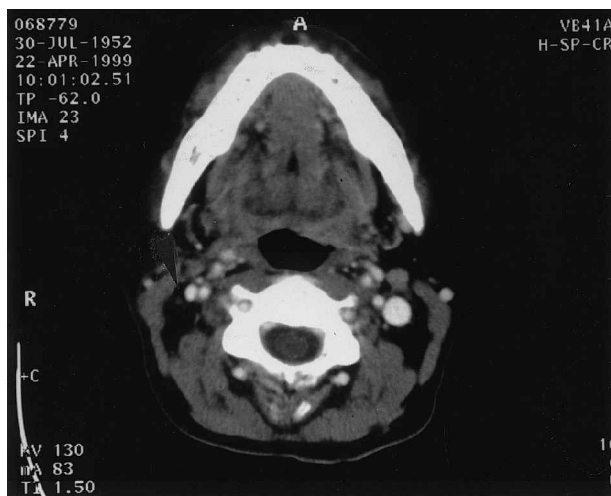


FIG. 3

Repeat axial view of the right parotid region six weeks after discharge. It shows patency of the right internal jugular vein. There is only a small amount of residual inflammatory stranding in the fat in the right parotid space.

She was immediately started on anticoagulation for three months and subsequently was sent home on a long course of oral ciproxin. The swelling in her neck subsided completely and a six weeks repeat CT scan of her neck showed marked improvement in the appearance with resolution of inflammation and a patent right internal jugular vein (Figure 3).

Discussion

Before the era of antibiotics thrombosis of the internal jugular vein was a frequent complication of head and neck infections.^{8,9} In the age of antibiotics internal jugular vein thrombosis is most commonly caused by jugular vein catheterization,³ neck dissection,² hypercoagulable state associated with malignancy,³ neck injury⁶ and ovarian hyperstimulation syndrome.¹⁰

Venous thrombosis can result from disturbance of one or more pathophysiological mechanisms of play in Virchow's classic triad of endothelial damage, stasis and hypercoagulable state.^{11,12} The internal jugular vein and the surrounding carotid fascia are parts of the post-styloid compartment of the parapharyngeal space. The deep lobe of the parotid gland forms a lateral relation of the parapharyngeal space.¹³ In the patient described, the acute infection of the parotid gland involved the deep lobe. The infection transgressed the fascial planes and infected the walls of the internal jugular vein leading to thrombophlebitis and thrombosis. Indeed the CT scan showed inflammation on the deep lobe of the parotid and an associated inflammatory mass encircling the thrombosed internal jugular vein.

The parotid gland is drained by the retromandibular vein, the anterior branch of which, joins the facial vein which is a tributary of the internal jugular vein.¹³ Therefore, it is possible that another mechanism of thrombosis of the internal jugular vein was the propagation of thrombi along the veins draining the parotid gland into the internal jugular vein.

Reported complications associated with jugular vein thrombosis include septic emboli, pulmonary embolism, elevated intracranial pressure,¹⁴ facial oedema, intracranial venous thrombosis¹⁵ and loss of vision.¹⁶ It is therefore imperative that patients with jugular vein thrombosis associated with infection are treated vigorously. Our patient had antibiotics to control the primary infection. She was also anticoagulated to prevent the propagation of the thrombus.

We believe that this is the first reported association of acute parotitis and internal jugular vein thrombosis.

References

- 1 Leontsinis TG, Currie AR, Mannell A. Internal jugular vein thrombosis following functional neck dissection. *Laryngoscope* 1995;**105**:169-74
- 2 Brown DH, Mulholland S, Yoo JHJ, Gullane PJ, Irish JC, Neligan P, *et al.* Internal jugular vein thrombosis following modified neck dissection: Implications for head and neck flap reconstruction. *Head Neck* 1998;**20**:169-74
- 3 Chowdhury K, Bloom J, Black MJ, Al-Noury K. Spontaneous and nonspontaneous internal jugular vein thrombosis. *Head Neck* 1990;**12**:168-73
- 4 De Bruijn NP, Stadt HH. Bilateral thrombosis of internal jugular veins after multiple percutaneous cannulations. *Anesth Analg* 1981;**60**:448-9
- 5 Schafer AI. The hypercoagulable states. *Ann Int Med* 1985;**102**:814-28
- 6 Duke BJ, Ryu RK, Brega KE, Coldwell DM. Traumatic bilateral jugular vein thrombosis: Case report and review of the literature. *Neurosurgery* 1997;**41**:680-3

- 7 DeSena S, Rosenfeld DL, Santos S, Keller I. Jugular thrombophlebitis complicating bacterial pharyngitis (Lemierre's syndrome). *Pediatr Radiol* 1996;**26**:141–4
- 8 Goodman C. Primary jugular thrombosis due to tonsil infection. *Ann Otol Rhinol Laryngol* 1917;**26**:527–9
- 9 Long JW. Excision of internal jugular vein. *Surg Gynecol Obstet* 1912;**14**:86–91
- 10 Hignett M, Spence JE, Claman P. Internal jugular vein thrombosis: a late complication of ovarian hyperstimulation syndrome despite mini-dose heparin prophylaxis. *Hum Reprod* 1995;**10**:3121–3
- 11 Cohen JP, Persky MS, Reede DL. Internal jugular vein thrombosis. *Laryngoscope* 1985;**95**:1478–82
- 12 Kernstein M. Thrombophlebitis. *Angiology* 1977;**28**:228–39
- 13 McMinn RMH. *Last's Anatomy. Regional and Applied*, 9th edn. Edinburgh, London: Churchill Livingstone, 1994
- 14 Kaplan RE, Springate JE, Feld LG, Cohen ME. Pseudotumor cerebri associated with cerebral venous sinus thrombosis, internal jugular vein thrombosis and systemic lupus erythematosus. *J Pediatr* 1985;**107**:266–8
- 15 Lam BL, Schatz NJ, Glaser JS, Bowen BC. Pseudotumor cerebri from cranial venous obstruction. *Ophthalmology* 1992;**99**:706–12
- 16 Gutteridge IF, Royle JP, Cockburn DM. Spontaneous internal jugular vein thrombosis and venous-stasis retinopathy. *Stroke* 1987;**18**:808–11

Address for correspondence:

Dr Edward Hadjihannas,
Flat 356, The Watergardens,
Burwood Place,
London W2 2DJ, UK.

E-mail: e_hadjihannas@hotmail.com

Dr E. Hadjihannas takes responsibility for the integrity of the content of the paper.

Competing interests: None declared
