The Journal of Laryngology & Otology (2008), ***122***, *97–99.*
© 2006 JLO (1984) Limited
doi:10.1017/S0022215106005317
Printed in the United Kingdom
First published online 19 March 2007

Clinical Record

Tolosa–Hunt syndrome misdiagnosed as sinusitis complication

V A Lachanas, G T Karatzias, I Tsitiridis, I Panaras, V G Sandris

Abstract

Objective: Tolosa–Hunt syndrome is a rare condition of painful ophthalmoplegia combined with ipsilateral ocular motor nerve palsies, caused by non-specific granulomatous inflammation in the cavernous sinus, superior orbital fissure or orbit. A case of Tolosa–Hunt syndrome misdiagnosed as sinusitis orbital complication is reported.

Case report: A patient suffering from left periorbital pain, upper eyelid oedema and ptosis, and horizontal diplopia, diagnosed as sinusitis orbital complication, was referred to our department. Clinical evaluation revealed only a left VIth nerve paresis. Haematological studies, cerebrospinal fluid tests and computed tomography scanning were negative. A magnetic resonance imaging (MRI) scan showed enhancement of the left cavernous sinus. Corticosteroid therapy was commenced, and within three days all symptoms disappeared. A diagnosis of Tolosa–Hunt syndrome was made. Follow-up MRI studies were normal.

Conclusion: Tolosa–Hunt syndrome, although rare, is a nosological entity that otolaryngologists must bear in mind. Magnetic resonance imaging studies are essential in the diagnosis and follow up of these patients, in order to avoid a mistaken Tolosa–Hunt syndrome diagnosis.

Key words: Tolosa-Hunt Syndrome; Sinusitis

Introduction

The Tolosa–Hunt syndrome is a rare, benign condition of painful ophthalmoplegia combined with ipsilateral ocular motor nerve palsies, caused by non-specific granulomatous inflammation in the cavernous sinus, superior orbital fissure or orbit.[1–4] The incidence of Tolosa–Hunt syndrome has been estimated as approximately one to two cases per million.[2] The aetiology of the syndrome is still unknown, and it can affect people of virtually any age, with no sex predilection. It is usually unilateral, with no predisposition for right or left side; it has been reported as bilateral in 4.1–5 per cent of cases.[2,3]

Since otolaryngology is one of the specialties dealing with patients suffering from painful ophthalmoplegia, we would like to report a rare case of Tolosa–Hunt syndrome which was misdiagnosed as sinusitis orbital complication. The clinical features, diagnostic investigation and differential diagnosis of the condition, as well as the importance of magnetic resonance imaging (MRI) studies, are briefly addressed.

Case report

A 40-year-old man was referred to our department with the suspicion of an orbital complication of sinonasal disease. The patient complained of a mild left periorbital pain, which had been diagnosed as sinusitis by his general practitioner five days earlier and treated with oral amoxicillin and clavulanate (625 mg three times daily). On the day of admission to our department, the pain had become more intense, with the development of slight left upper eyelid oedema, left upper eyelid ptosis and horizontal diplopia of left gaze.

A complete otorhinolaryngologic clinical evaluation, including nasal endoscopy, was normal. Ophthalmological and neurological clinical examinations revealed no abnormality, apart from a left VIth nerve paresis. Complete blood counts, serum electrolytes, erythrocyte sedimentation rate and C-reactive protein tests were normal. The patient did not have any fever. A computed tomography (CT) scan was also normal. A gadolinium-enhanced MRI of the brain and skull was obtained. The T1-weighted images revealed enhancement of the left cavernous sinus (Figure 1). Tests for angiotensin-converting enzyme, thyroid-stimulating hormone, serum electrophoresis, autoimmune antibodies, ANA, ANCA, ENA and AMA, rheumatoid factor and serum complement were also normal. A tuberculin skin test, chest X-ray, cerebrospinal fluid examination, biopsy of the nasopharynx, cerebral angiography, venereal disease research laboratory (VDRL) test and *Borrelia burgdorferi* serology were all negative. No evidence of viral infection (herpes simplex, Epstein–Barr, cytomegalovirus, rubella or roseola) was found.

Corticosteroid therapy (methylprednisolone 1 mg/kg) was commenced, and within a three day period all symptoms had disappeared. A diagnosis of Tolosa–Hunt syndrome was made.

Steroids were administered for six weeks. Four months later, MRI scans showed disappearance of the pathological findings. Further MRI studies, performed 12 months after diagnosis of Tolosa–Hunt syndrome, were also normal.

From the Department of Otolaryngology, General Hospital of Larissa, Larissa, Greece.
Accepted for publication: 28 September 2006.

https://doi.org/10.1017/S0022215106005317 Published online by Cambridge University Press

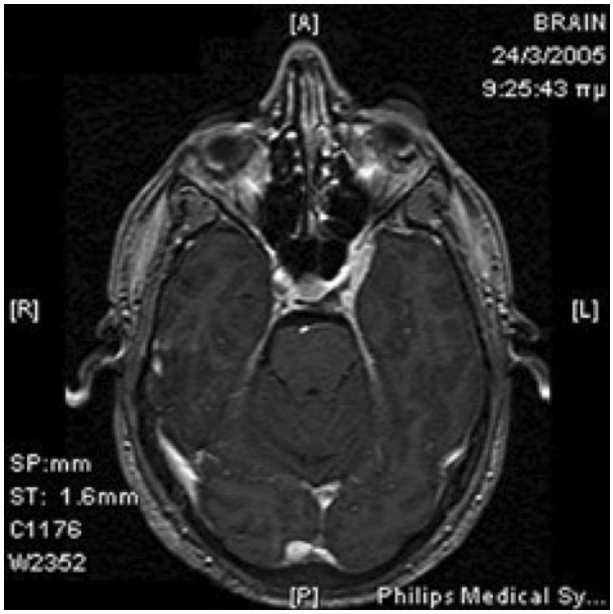

FIG. 1

T1-weighted gadolinium-enhanced magnetic resonance imaging of the brain and skull, showing enhancement of the left cavernous sinus.

TABLE I

DIAGNOSTIC EVALUATION OF TOLOSA–HUNT SYNDROME[4]

Haematological tests	Complete blood count Glucose, electrolytes, liver & renal function Erythrocyte sedimentation rate, C-reactive protein Haemoglobin A_{1c} Fluorescent treponemal antibody test Antinuclear, anti-dsDNA, anti-SM antibodies Serum protein electrophoresis Antinuclear cytoplasmic antibody Angiotensin-converting enzyme
Cerebrospinal fluid studies	Opening pressure Cell count and differential, protein, glucose Culture: bacterial, fungal, mycobacterial Angiotensin-converting enzyme Serology, cytology
Imaging studies	MRI, CT, cerebral angiography
Biopsy	Nasopharynx Cavernous sinus

dsDNA = double stranded deoxyribonucleic acid; MRI = magnetic resonance imaging; CT = computed tomography

Discussion

In 2004, the International Headache Society established the following diagnostic criteria for Tolosa–Hunt syndrome: one or more episodes of unilateral orbital pain persisting for weeks if untreated; paresis of one or more of the IIIrd, IVth and/or VIth cranial nerves and/or demonstration of granuloma by MRI or biopsy; paresis coinciding with the onset of pain or following it within two weeks; and pain and paresis resolving within 72 hours when treated adequately with corticosteroids (other causes having been excluded).[1,2,5]

The onset of Tolosa–Hunt syndrome is usually acute, and the patient's symptoms last for days to weeks. In 30 per cent of cases, there is sensory loss in the distribution of the ophthalmic division of the trigeminal nerve, while optic nerve dysfunction has also been reported. Rarely, the maxillary and mandibular branches of the trigeminal, facial, acoustic or vestibulocochlear nerves may be affected.[2,4]

Due to the location and small size of the lesion in the cavernous sinus, surgical biopsy is technically difficult and dangerous. Therefore, imaging results are highly significant in the diagnosis of the syndrome.[6] High resolution CT can demonstrate soft tissue changes in the region of the cavernous sinus and superior orbital fissure, but this modality is less sensitive than MRI, due to the former's lack of sensitivity in soft tissue imaging. Contrast-enhanced MRI is the examination of choice. The abnormality is seen as intermediate signal intensity on T1 and intermediate weighted images, consistent with an inflammatory process. Intravenous injection of paramagnetic contrast reveals enhancement of the abnormal area. It should be noted that a small number of patients show normal MRI findings.[2,4] The MRI findings before and after systemic corticosteroid therapy are important in the definitive diagnosis of Tolosa–Hunt syndrome.[2,7] However, diagnostic MRI findings do not as yet exist, making Tolosa–Hunt syndrome a diagnosis of exclusion. Therefore, careful patient evaluation (Table I) is required, in order to rule out tumours, vascular causes, other forms of infection and other causes of painful ophthalmoplegia (Table II).[2,4]

Tolosa–Hunt syndrome is essentially a benign disorder which responds rapidly to the administration of corticosteroids. However, some cases do not respond to corticosteroid therapy.[2,8] Tolosa–Hunt syndrome follows an unpredictable course. Before the use of corticosteroids in Tolosa-Hunt syndrome, there was clear evidence that spontaneous remissions occurred. Recurrences are common, occurring in about one-half of reported patients, within months or years of the initial attack. Although Tolosa–Hunt syndrome is a self-limiting illness, it still causes considerable morbidity. Rarely, residual cranial nerve palsies may persist.[4] Orbital and periorbital pain and paresis resolve within 72 hours when treated adequately with corticosteroids.[2] The disappearance of symptoms following systemic corticosteroid treatment may precede normalisation of neuroradiological studies by weeks or even several months.[2] On the other hand, the clinical improvement after steroid therapy is not absolute proof of diagnosis, as lymphoma, meningioma and giant cell tumours also

TABLE II

CAUSES OF PAINFUL OPHTHALMOPLEGIA[2]

Trauma
Tumours
Vascular:
Intracavernous carotid artery aneurysm
Posterior fossa aneurysm
Carotid-cavernous fistula
Carotid-cavernous thrombosis
Infections
Tolosa–Hunt syndrome
Sarcoidosis
Eosinophilic granuloma
Orbital diseases
Diabetic ophthalmoplegia
Basal meningitis
Vasculitis
Ophthalmoplegic migraine

https://doi.org/10.1017/S0022215106005317 Published online by Cambridge University Press

respond symptomatically to steroids, albeit with some delay; however, signs do not resolve.[9] Therefore we believe that follow-up MRI studies in these patients are vital, in order to monitor evolution of the lesion and also to avoid an incorrect diagnosis of Tolosa–Hunt syndrome in the presence of other lesions.

- **Tolosa–Hunt syndrome is a rare (one to two cases per million), benign condition of painful ophthalmoplegia combined with ipsilateral ocular motor nerve palsies, caused by non-specific granulomatous inflammation in the cavernous sinus, superior orbital fissure or orbit**
- **A case of Tolosa–Hunt syndrome misdiagnosed as sinusitis orbital complication is reported**
- **Magnetic resonance imaging studies are essential in the diagnosis and follow up of these patients, in order to avoid a mistaken diagnosis**

In conclusion, we believe that, since otolaryngologists deal with patients suffering from painful ophthalmoplegia, Tolosa–Hunt syndrome, although rare, is a nosological entity that we must bear in mind. We would also like to highlight the importance of MRI studies in the diagnosis and follow up of these patients, in order to avoid a mistaken diagnosis.

References

1 Kobor J, Voros E, Deak A. Magnetic resonance imaging in Tolosa-Hunt syndrome. *Eur J Pediatr* 2004;**163**:753–4
2 Iaconetta G, Stella L, Esposito M, Cappabianca P. Tolosa-Hunt syndrome extending in the cerebello-pontine angle. *Cephalalgia* 2005;**25**:746–50
3 Cakirer S. MRI findings in the patients with the presumptive clinical diagnosis of Tolosa-Hunt syndrome. *Eur Radiol* 2003;**13**:17–28
4 Kline LB, Hoyt WF. The Tolosa-Hunt syndrome. *J Neurol Neurosurg Psychiatry* 2001;**71**:577–82
5 Headache Classification Sub-Committee of the International Headache Society. The international classification of headache disorder, 2nd edn. *Cephalalgia* 2004;**24**:1–160
6 Haque TL, Miki Y, Kashii S, Yamamoto A, Kanagaki M, Takahashi T *et al*. Dynamic MR imaging in Tolosa-Hunt syndrome. *Eur J Radiol* 2004;**51**:209–17
7 Cakirer S. MRI findings in Tolosa-Hunt syndrome before and after systemic corticosteroid therapy. *Eur J Radiol* 2003;**45**:83–90
8 Odabasi Z, Gokcil Z, Atilla S, Pabuscu Y, Vural O, Yardim M. The value of MRI in a case of Tolosa-Hunt syndrome. *Clin Neurol Neurosurg* 1997;**99**:151–4
9 Zournas C, Trakadas S, Kapaki E, Doris S, Gatzonis S, Gouliamos A *et al*. Gadopentetate dimeglumine-enhanced MR in the diagnosis of the Tolosa-Hunt syndrome. *Am J Neuroradiol* 1995;**16**(suppl 4):942–4

Address for correspondence:
Dr George T Karatzias,
Consultant, 4 Skra Str,
41221 Larissa, Greece.

Fax: +30 2410615466
E-mail: vlachanas@yahoo.com

Dr G T Karatzias takes responsibility for the integrity of the content of the paper.
Competing interests: None declared

https://doi.org/10.1017/S0022215106005317 Published online by Cambridge University Press