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Case Report

Isolated unilateral IIIrd nerve palsy as the only sign of chronic subdural haematoma

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ARTICLE INFO

Article history:

Received 24 January 2013

Accepted 16 July 2013

Available online 26 September 2013

Keywords:

Isolated unilateral oculomotor palsy

Chronic subdural haematoma

Middle aged individual

infiltration. Subdural haematomas presenting with an isolated unilateral oculomotor paralysis, without any other notable signs or symptoms, except for mild headache, however, are very unusual. To the best of our knowledge it has been reported only thrice earlier in literature.^{2–4}

Here we report one such rare case of CSDH in a relatively young individual who presented with unilateral complete third nerve palsy as the only presenting sign and a normal level of consciousness.

Case report

A 50-year old male patient reported to this centre with complaints of drooping of the right upper eyelid, for the past 1 day. He also gave a history of generalized mild headache for the past 1 week. There was no history of any injury, vomiting, fever, seizures, loss of consciousness, slurred speech, numbness, weakness, diplopia or any other major systemic illnesses like hypertension or diabetes. The patient also gave no history of any cardiovascular disorder. Patient was not a known alcoholic and neither was he on any anti coagulant or anti platelet therapy. On examination the patient was conscious and well oriented in time and space. His vitals were all within normal limits. Neurological examination was strictly unremarkable. Blood test revealed a normal blood count, urea, creatinine and electrolytes and was also negative for HIV antibodies. Ocular examination of the right eye revealed a vision of 6/9, improving to 6/6 with pin hole. There

Introduction

Subdural haematoma (SDH) is the collection of blood below the inner layer of the dura but external to the brain and the arachnoid membrane. It is the most common type of traumatic intracranial mass lesion seen. Chronic subdural haematoma (CSDH) usually presents with headache, fluctuating level of consciousness, falls, seizures, focal or transient neurological deficits and hemiparesis¹ (Table 1). Isolated third nerve palsy is a common presentation of intracranial aneurysms, diabetes mellitus, trauma and in chronic lymphocytic meningeal

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<http://dx.doi.org/10.1016/j.mjafi.2013.07.009>

Table 1 – Presentations of chronic subdural haematoma.¹

A	Common presentations
1	Altered mental state
2	Focal neurological deficit
3	Headache
4	Falls
5	Seizures
6	Transient neurological deficits
B	Atypical presentations
1	Isolated neurological deficits
2	Extrapyramidal syndromes
3	Rare neurological syndromes
4	Ease of falling

was severe ptosis with the marginal reflex distance 1 (MRD1) < -0.5 mm and a poor levator function (<4 mm) (Fig. 1). The eyeball too was displaced outwards and downwards (infraducted and abducted) (Fig. 2). The ocular movements were severely affected, with an absence of adduction and elevation; however abduction was full with mild residual depression. Depression was accompanied by intorsion, maximally when the eye was abducted. The pupil was dilated (6 mm) and un-reactive to light (vs. 3 mm and reactive in the left eye) (Fig. 3). Fundus was essentially normal. The left eye was uninvolved. A provisional diagnosis of isolated unilateral oculomotor nerve palsy, right eye, was made and the suspected site of involvement of the nerve was clinically deduced to be around the fascicular subarachnoid portion. This is because the fascicles of the third cranial nerve exit the mid brain through the medial aspect of the cerebral peduncles and are not near any other cranial nerves at this point. So isolated third cranial nerve palsy occurs from lesions in this location. Aneurysm is the most common lesion to affect the third cranial nerve in the subarachnoid space. The fact that the pupil too was involved pointed towards a posterior communicating artery aneurysm. A provisional diagnosis of a posterior communicating artery aneurysm with or without overt subarachnoid haemorrhage was made and the patient was sent for an urgent computed tomography (CT scan) of the brain and orbits, which revealed a CSDH in the right fronto-temporo-parietal lobe, causing mass effect in the form of compression of the right lateral ventricle and a midline shift of 16.5 mm

Fig. 1 – Severe ptosis right eye. **Fig. 2 – The eyeball is displaced outwards and downwards (infraducted and abducted).**

(Fig. 4). The patient was immediately transferred to a higher neurological centre where he underwent evacuation of the haematoma via a right frontal burr hole surgery. Post operative period was uneventful and the patient was put on anti epileptics (tablet dilantin 300 mg once daily), observed for 2 months and then sent on 04 weeks sick leave. His oculomotor nerve palsy gradually recovered completely and CT scan brain repeated on his return from sick leave showed a complete resolution of the haematoma. He was finally discharged back to his unit with no residual adverse effects whatsoever (Fig. 5).

Discussion

SDH are further divided into acute, subacute and chronic, depending on the speed of their onset.

Acute subdural haematoma (ASD) generally occurs in younger adults after a major trauma. It is often associated with structural brain damage, and presents within 72 h of the injury.⁵ While those taking between 3 and 7 days to develop are classified as subacute subdural haematomas. CSDH is predominantly a disease of the elderly with a peak incidence in the sixth and seventh decade of life and is very rarely seen

Fig. 3 – Pupil right eye, dilated (6 mm) and un-reactive to light.

Fig. 4 – Computed tomography of the brain and orbits showing a CSDH in the right fronto-temporo-parietal lobe, causing a mass effect in the form of compression of the right lateral ventricle and a midline shift.

in young adults.⁶ One large scale study revealed its mean age of occurrence as 80.6 years.⁷ However in our case the patient was relatively young. It usually occurs after a trivial injury though a history of direct trauma to the head is absent in up to half the cases.⁷ There is no damage to the underlying brain and usually there is a period of weeks to months before it becomes clinically evident and then these patients of CSDH usually present with various neurological signs and symptoms. However, uniquely, in our patient, the only presenting sign was just an isolated oculomotor nerve palsy.

Isolated oculomotor nerve palsy occurring in association with subdural haematoma is in itself, a rare finding.¹ And it occurring as the only presenting feature of a massive SDH is in fact extremely rare.

The oculomotor nerve is a somatic and visceral motor nerve which innervates the levator palpebrae superioris and most of the ocular muscles (except the lateral rectus and the superior oblique muscles). With its parasympathetic fibres, it innervates the iris constrictor and the annular portion of the ciliary muscle. When completely injured, it results in ptosis, pupils that are non-reactive to light and restricted eye

movement. Examination of the pupils is most important in cases of third nerve palsies because they help in differentiating between the surgical from the medical causes. The pupils are supplied by the parasympathetic fibres that originate in the Edinger-Westphal subnucleus of the third cranial nerve complex. The pupil fibres are located very superficially in the nerve and are nearly always involved in surgical causes of third nerve palsies like compressive lesions or posterior communicating artery aneurysm, with or without subarachnoid haemorrhage. While pupil-sparing third cranial nerve palsies are usually medical in nature. They are seen in ischaemic lesions that tend to involve the central core of the nerve. They also tend to usually resolve uneventfully within a few weeks.⁸

Third nerve palsies can result from lesions located anywhere from the origin of its nucleus, at the level of the superior colliculus, to the termination of the nerve in the extraocular muscles within the orbit. It may occur due to various etiologies ranging from infectious, vascular, traumatic, toxic and metabolic disorders (Table 2). It may even sometimes, herald the manifestation of some underlying neurological emergency such as an intracranial aneurysm, pituitary apoplexy or giant cell arteritis.

Computed Tomography brain is the method of choice for the diagnosis of CSDH, though a magnetic resonance imaging

Fig. 5 – Patient discharged with no residual defects.

Table 2 – Risk factors for developing chronic subdural haematoma.⁵

Serial No.	Risk factor
1.	Advancing age
2.	Fall
3.	Head injury
4.	Anticoagulants/antiplatelet drugs
5.	Bleeding diatheses
6.	Alcohol
7.	Epilepsy
8.	Low intracranial pressure
9.	Haemodialysis

(MRI) can provide far more structural information on the haematoma itself.⁵

Conclusion

Oculomotor nerve palsies are commonly encountered in clinical practice and usually express an underlying local, regional or general disease. They may be unilateral or bilateral, may involve one or several nerves at the same time and may be obvious or subclinical. In order to find out the etiology it is necessary to carry out a detailed and careful clinical examination as well as complimentary investigations. It is also essential to differentiate the medical causes like ischaemia (which carry a good prognosis and generally recover spontaneously) from the surgical causes like SDH, which need an urgent surgical intervention. CSDH represents one of the most frequent intracranial hemorrhages encountered in the neurosurgical department, with elderly citizens being more frequently affected.⁹ As we are now living in a society that is aging, CSDH cases seem to be on the rise. Contrary to the usual patient profile of a case of CSDH, our patient was a relatively young and apparently healthy individual with no history of diabetes, hypertension or any other metabolic or vascular disorder, and only presented with right sided isolated third nerve palsy of just 1 day duration.¹⁰ It is these types of cases which pose a diagnostic dilemma. Keeping in mind the varied presentations of CSDH, a relatively common disease; it becomes that much more important that the initially treating doctor considers all such varied presentations, when confronted with such cases. This becomes even more important when we realize that surgery is very effective in patients of SDH and that the results are far better with an early surgical intervention rather than if it is delayed.¹¹ Finally we recommend that patients with ocular motor nerve palsy should always be carefully examined in close collaboration with other specialists, especially where sophisticated, complementary investigations are not available.

Conflicts of interest

All authors have none to declare.

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