Pituitary apoplexy in association with lymphocytic hypophysitis

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Summary Pituitary apoplexy has been recognised much more frequently since the introduction of CT and MRI scanning. Lymphocytic hypophysitis has been increasingly diagnosed in recent years. A case of pituitary apoplexy occurring in a patient with lymphocytic hypophysitis as part of a polyglandular syndrome is reported. This combination does not appear to have been previously reported. The pituitary haemorrhage was confirmed on MRI and at surgery. Lymphocytic hypophysitis was confirmed histologically. The apoplexy was accompanied by severe headache, elevation of the optic chiasm, developing field loss and onset of ptosis. The apoplexy was precipitated by neck extension.

CASE REPORT

A 31 year old senior nurse was in apparent good health and taking no medication except for oral contraceptives and thyroid replacement therapy. She had undergone a cholecystectomy eight weeks prior to the onset of her present symptoms. The thyroxine therapy had been undertaken since the age of 13 when she was diagnosed with an auto-immune thyroiditis which caused hypothyroidism. The oral contraceptive was Triphasil brand of sequential levonorgestrel with ethinylestradiol. There was no history of hypertension prior to or after the apoplectic event. Whilst attending a beautician and sitting semi-recumbent with her neck extended over a hair washing basin, she experienced the instantaneous onset of a headache which was too severe to allow her hair care to continue. The pain was bitemporal, biparietal and frontal. There was also a sense of pressure in the left cheek. On presentation to her family doctor she said the headaches were a pressure feeling which made her irritable. The headache was worse with coughing and with exertion. No neurological or other abnormality was found.

She was seen by a neurosurgeon on the fourteenth day after the onset. She reported continuing severe headaches which had been worse in the morning and were increased with sneezing, coughing or bending forward. She reported some enlargement of the breasts although they did not feel full and galactorrhea was not present. Physical examination revealed bilateral occipital tenderness. There was a cut off of the superior temporal visual fields to confrontation. There was a soft diffuse swelling of the thyroid gland. Perimetry showed decreased sensitivity of the left eye on the Humphrey visual field and the Goldman perimetry showed some superior temporal field loss. There was no abnormality of the right eye.

Magnetic Resonance Scanning on the sixteenth post-haemorrhage day showed a mass within the pituitary fossa with a suprasellar extension of 9 mm (Fig. 1). The central loculus indented, elevated and splayed the optic chiasm. The pituitary mass was mostly of low density but there was an area of high signal in the T1 image which did not enhance (Fig. 2). The T2 image showed a low signal in the lower part of the area which corresponded to the high signal area on the T1 image (Fig. 3). A further MRI eight days later showed no significant change in the appearances of the haematoma or in the size of the mass lesion (Fig. 4). The craniocaudal dimension of the lesion was 21 mm and the width was 11 mm. There was symmetrical expansion of the superior portion of the gland. After IV contrast (Gadolinium) peripheral enhancement occurred but there was no enhancement of the central part of the mass. The pituitary stalk was thickened and displayed moderate enhancement.

Thyroid hormone assays were within the normal range. TSH 0.651 mU/L. Free T4 18.3 pmol/L. Free T3 3.78 pmol/L. Total T3 1.5 nmol/L. The serum oestradiol was less than 73.4 pmol/L. The luteinising hormone was less than 0.71U/L. Follicle stimulating hormone was 0.541U/L. Growth hormone was modestly elevated at 15 mU/L. Prolactin was 275 mU/L. The modestly decreased levels of oestradiol, LH and FSH indicated...
hypogonadotrophic hypogonadism or use of oestradiol ACTH was 2.5 pmol/L. When reviewed with the endocrine investigations she had developed a mild ptosis of the left eye suggesting third nerve involvement in the cavernous sinus. Significant headache persisted.

Five weeks after the onset a trans-septal trans-sphenoidal surgical approach was made to the pituitary mass. There was an area of brown discoloration consistent with the recent haemorrhage and an area about 5 mm in diameter which appeared to be organised clot with a golden coloration. There was also tarry liquid consistent with old liquefied clot. The pituitary gland was hard and rubbery. No localised tumour was found and all the hard rubbery component of the gland was removed. Extensive inspection of the rest of the gland revealed no other areas suggestive of tumour. The post-operative course was uneventful.

The histopathology revealed no evidence of tumour. In the adenohypophysis there were large focal areas of fibrosis with a sparse chronic inflammatory infiltrate consisting of lymphocytes, plasma cells and eosinophils with loss of most of the adenohypophyseal cells in these areas. There were small foci of active inflammation within the residual parenchyma which contained a normal mixture of adenohypophyseal cells morphologically and on immunostaining for prolactin, growth hormone, FSH, LH, TSH and ACTH (Fig. 5). More severe chronic inflammation was seen in the intermediate lobe extending into the neurohypophysis (Fig. 6). The inflammation was not granulomatous and no necrosis was seen. In immunohistochemical stains, the majority of lymphocytes were T cells (CD3 positive), with small numbers of B lymphocytes (CD20 positive). CD 68 stain showed many macrophages in the areas of inflammation. The overall appearance was consistent with a lymphocytic hypophysitis, and the extensive areas of fibrosis within the adenohypophysis suggested a fairly chronic process. The inflammatory changes were widely distributed throughout the areas of the gland which was removed. No tumour material was found throughout any of the areas examined in the extensive histological survey of the material excised at surgery.

Fig. 1 MRI examination on day 16 shows a mass lesion in the pituitary gland with suprasellar extension. The optic chiasm is elevated. There is an inferior intra-gland component which shows high signal in the T1 image. The remaining gland shows signal characteristics of fluid. The cranial part of the gland is symmetrically expanded.

Fig. 2 MRI day 16. After IV contrast there is peripheral enhancement around the mass only. No enhancement is seen within the mass. There is moderate enhancement and thickening of the pituitary stalk and the optic chiasm is possibly splayed.

Fig. 3 MRI day 16. The T2 image showed a cystic lesion with low signal in the caudal section corresponding to the high signal in the T1 image.

Fig. 4 MRI day 24. There is no significant change in the appearances of the acute haematoma or in the size of the mass lesion.
Serology was negative for Anti-nuclear Antibody using an immunofluorescent method. Due to a laboratory error, the blood collected at the time of the surgery was lost and Pituitary Antibody assays were not available. As this was a research assay performed in batches at six to eight month intervals, the loss of the specimen was not initially apparent. A further specimen was collected eleven months after the surgery and analysed seventeen months after the surgery but was negative. Corticosteroids were not used for management in view of the involvement of chiasm and the visual dysfunction. Subsequently, the patient demonstrated hypopituitarism and diabetes insipidus. These are consistent with the outcome of lymphocytic hypophysitis and partly due to the acute haematoma. The optic chiasm was displaced and splayed on this occasion. The indication for surgery was the presence of ongoing severe headache combined with a field loss and the ptosis suggesting cranial nerve dysfunction. The hypothyroidism secondary to an autoimmune thyroiditis together with the hypophysitis indicates that this is a case of polyglandular syndrome. Pituitary adenomas may undergo massive infarction. Haemorrhage into pituitary tumour has been reported following trauma. The cause of the haemorrhage appeared to be neck extension in this case. Ebersold and Laws listed 19 apparent precipitating factors. Trauma and coughing or sneezing may be analogous to the situation on this occasion because those factors cause a rise in intrathoracic pressure with a consequential rise in venous pressure. Extension of the neck on this occasion may also have caused a rise in venous pressure. The cause of the haemorrhage on this occasion cannot be attributed to tumour infarction suggesting a primary vascular cause may be relevant.

Ebersold reported that diplopia caused by a 3rd and 6th nerve palsy has a favourable prognosis after surgical decompression. They concluded that most cases of pituitary apoplexy with cranial nerve involvement required surgical decompression. Ahmed reported two cases of necrotising infundibulo-hypophysitis which resulted in diabetes insipidus and hypopituitarism. These cases were not accompanied by haemorrhage. This patient has continued to have diabetes insipidus and hypopituitarism post-operatively. Histology obtained at transphenoidal surgery revealed fibrosis and chronic inflammation but no necrosis. It is possible that this patient also had a necrotising change which was obliterated by the haemorrhage. The necrosis may have facilitated haemorrhage when the venous pressure was elevated by neck posturing.

The possibility that the lesion may have been haemorrhage into infarction of a pre-existing pituitary tumour was considered. There were no clinical features to support the presence of a pre-existing pituitary tumour (nor of hypophysitis.) Exhaustive examination of the removed material failed to show...
any material suggestive of pituitary tumour. Immunostained tissue revealed normal functioning pituitary parenchyma associated with the lymphocytic infiltration. The diagnosis of hypophysitis was confirmed in a woman with a demonstrated autoimmune disorder. Despite adequate biopsies following inspection of the pituitary gland, no area suspicious of tumour was seen by the operating surgeons. A number of biopsies were taken to determine if a tumour was present and all were negative. Neither the clinical pattern nor the post-surgical course has supported the presence of a tumour and the biochemistry has not supported the presence of a tumour. This is the first documented case of pituitary apoplexy complicating lymphocytic hypophysitis.

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REFERENCES


INTRODUCTION

Occipital condyle fractures (OCF) are difficult to diagnose.1–16 The clinical presentation of occipital condyle fractures is varied.1,2,6,8,10,13–19 Most cases of clinically diagnosed OCFs present with lower cranial nerve deficits or deficits related to brain stem compression.4,14,16–18 Less commonly, the cranial nerve deficits due to OCF can be delayed.19 To date, only one case of delayed hypoglossal palsy following OCF has been reported.19

CASE REPORT

A 32 year old man sustained a fall from a two wheeler. He lost consciousness for 30 min. There was no history of vomiting, bleeding through the ear, nose or throat or seizures. At the time of admission to the hospital, he was hypotensive. There was evidence of fractures of the left radius, right femur and a haemopneumothorax on the right side. There was no clinical or radiological evidence of head or spine injury. The patient underwent treatment of his multiple injuries. Detailed neurological examination after resuscitation did not reveal any evidence of cranial nerve injury. Three weeks after the accident, the patient started complaining of slurring of speech. Examination at this time revealed a right hypoglossal nerve palsy. Other cranial nerves including the other lower cranial nerves were normal. There were no other focal neurological deficits. CT of the brain revealed a fracture of the occipital condyle on the right side (Fig. 1A,B). The patient was immobilized in a rigid cervical collar for 12 weeks. On follow up examination 18 months later, the patient noticed slight improvement in his speech although there was no objective improvement in his hypoglossal palsy.

DISCUSSION

Incidence of OCF

Occipital condyle fractures are difficult to diagnose.14,16 The variations in the clinical presentations and the inability to delineate the fracture by plain radiographs add to the diagnostic difficulty. Sir Charles Bell was the first to describe a case

 Delayed hypoglossal palsy following occipital condyle fracture – case report

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Summary

Occipital condyle fractures are rare. When present, they produce lower cranial palsies and/or brainstem dysfunction. A 32 year old man sustained multiple injuries. At the time of admission the patient had no neurological deficits. Three weeks after the accident, the patient complained of slurring of speech. Clinical examination revealed an isolated hypoglossal palsy. Radiological evaluation revealed an occipital condyle fracture. The patient was treated with a rigid collar. Eighteen months after the injury, the patient noted slight improvement in his speech. However, clinical examination showed a persistent hypoglossal palsy. Occipital condyle fractures are rare. They may be associated with lower cranial nerve palsies. As demonstrated by this case, this entity should be included in the differential diagnosis of hypoglossal palsy. Since occipital condyle fractures can exist without neurological deficits, special attention should be paid to imaging of the craniovertebral junction in patients with head injury.