Fig (a) Normal admission scan. (b) Nine days later. Extensive basal ganglia calcification.

occur in as short a period as 9 days, much more rapidly than generally believed.

YASUO IWASAKI, MASAO KINOSHITA,
KIYOSHI TAKAMIYA

The Department of Fourth Internal Medicine,
Toho University Ohashi Hospital,
2-17-6 Ohashi Meguro-ku Tokyo 153,
Japan

References

- 1 Virchow R. Kalk-Metastases. *Virchow Arch Patho Anat* 1855;8:103-33.
- 2 Bamberger PH. Beobachtungen und Bemerkungen über Hirnkrankheiten. *Verh Phys Med Ges Würzburg* 1855;6:325-8.

- 3 Fritzsche R. Eine familiär auf tretende Form von Ologophrenie mit röntgenologische nachweisbaren symmetrischen Kalkalagerungen in Gehirn, besonders in den Stammganglien. *Schweiz Arch Neurol Psychiat* 1935;35:1-29.
- 4 Eaton LM, Haines SF. Parathyroid insufficiency with symmetrical cerebral calcification. *JAMA* 1939;113:749-53.
- 5 Sprague RG, Haines SF, Power MH. Metabolic effects of parathyroid hormone, dihydrotachysterol and calcification in cases of pseudohypoparathyroidism. *J Lab Clin Med* 1945;30:363-4.
- 6 Kellinger K. Degenerations and exogenous lesions of the pallidum and striatum. In: Vinken PJ, Bruyn GW, eds. *Handbook of Clinical Neurology*. 1968;652-4.

Accepted 19 October 1987

An implant clamp for atlanto-axial fusion

Sir: Atlanto-axial arthrodesis was described by Gallie in 1939¹ and Brookes and Jenkins in 1978,² and atlanto-occipital fusion by Newman and Sweetnam, 1969.³ There is an appreciable incidence of non-union and a risk of damage to the vertebral arteries and medulla or cervical cord. Mitsui in 1982⁴ described a clamp to reduce and hold the atlas and the axis whilst fusion occurred. We report the use of a similar clamp in three cases. Case 1 was a man of 38 years with atlanto-axial instability following trauma, a Gallie graft failed but successful fusion followed the application of a clamp. Case 2 was a woman of 73 years with a non-union of the odontoid with spinal cord compression. Stable union was achieved. Case 3 was a girl with Down's syndrome aged 17 years who had progressive weakness in her legs. Radiographs showed anterior atlanto-axial subluxation. Reduction and fusion was achieved with some relief of the symptoms.

The device comprises two parallel horse-shoe shaped clamps with hooked ends which grasp the laminae of the atlas and axis. Long series screws with lock-nuts held the clamp in position. The whole assembly was manufactured from stainless steel (BS 3531 Comp.B). The patient lies prone with the head on a headrest with or without skull traction. Through a midline incision the neural arches and spinous processes are prepared. The upper and lower hooks of the clamp are inserted separately and reduction achieved by tightening the nuts on the screws. Cancellous bone grafts are inserted.

Fig (A) The implanted clamp. (B) Lateral radiograph showing clamp.

Clearly, the clamp is not suitable for fractures involving the posterior elements of either vertebra. We have no experience of its use in rheumatoid disease though Mitsui described its use in this situation. The clamp is effective and safe to insert and provides improved correction and stability compared to other methods of fusion.

KLG MILLS
TR SCOTLAND
D WARDLAW
R WYTCHE

Aberdeen Royal Infirmary
Aberdeen AB9 2ZD, UK

Correspondence to Mr KLG Mills

References

- 1 Gallie WE. Fractures and dislocations of the cervical spine. *Am J Surg* 1939;46:495-9.

- 2 Brooks AL, Jenkins EB. Atlanto-Axial Arthrodesis by the Wedge Compression Method. *J Bone Joint Surg* 1978;**60A**:279-92.
- 3 Newman P, Sweetnam R. Occiputo-cervical fusion: an operative technique and its indications. *J Bone Joint Surg* 1969;**51B**:423-31.
- 4 Mitsui H. A new operation for atlanto-axial arthrodesis. *J Bone Joint Surg* 1984;**66B**:422-5.

Accepted 24 August 1987

Fusiform aneurysm of the proximal anterior cerebral artery

Sir: Fusiform aneurysms are most commonly seen in the vertebrobasilar system, followed in frequency by the internal carotid and middle cerebral arteries.^{1,2} Involvement of a restricted segment of the anterior cerebral artery is rare and only a few cases have been reported.¹⁻⁵ A rare case of ruptured fusiform aneurysm which arose from the proximal anterior cerebral artery and which was successfully treated by clipping, is described.

A 47 year old man suffering from long term hypertension suddenly complained of severe headache and vomiting followed by loss of consciousness. On admission 2 weeks later, he was alert and complained of mild headache. A CT scan showed a faint subarachnoid haemorrhage and in the suprasellar cistern a small fusiform mass, which was enhanced by a contrast medium. Four-vessel angiography demonstrated a fusiform dilatation of the left proximal anterior cerebral artery (A₁ segment) 13 × 7 mm in size (fig a). There was elongation, tortuosity of the intracranial internal carotid arteries and vertebral arteries bilaterally. No saccular aneurysms or other possible cause of subarachnoid haemorrhage were identified. The fusiform dilatation of the left A₁ segment was thus thought to be the site of the haemorrhage.

A left pterional approach under normotensive general anaesthesia was performed on the 30th hospital day. The tortuous internal carotid and middle cerebral arteries were visualised and the proximal portion of the anterior cerebral artery was then exposed. The A₁ segment of the left anterior cerebral artery showed aneurysmal dilatation with semifusiform configuration. The dilatation of the artery originated from approximately 5 mm distal to the bifurcation of the internal carotid artery and terminated at the left A₁-A₂ junction. An angled fenestrated Sugita clip was then

Fig (a) Left carotid angiogram (cross angiogram) showing an aneurysmal fusiform dilatation of the left proximal anterior cerebral artery. (b) Postoperative left carotid angiogram showing successfully placed angled fenestrated clip to the fusiform aneurysm.

applied so as to form a new parent artery on the dorsal side of the wall surface, preserving the several perforating arteries from the origin of the anterior cerebral artery. Postoperative angiography showed a patent left A₁ portion of the anterior cerebral artery and a complete obliteration of the aneurysm (fig b). The patient was discharged after an uneventful recovery and returned to his previous job as a clerk.

Cerebral arterial ectasia, arteriosclerotic aneurysms, and megadolichoectasia are terms sometimes used to describe fusiform

aneurysms.^{1,2,5} The abnormality is characterised by pathological tortuosity and elongation and dilatation of the cerebral arteries.^{2,5} The vertebrobasilar system, internal carotid artery and middle cerebral artery are most frequently involved.^{1,2} There have been only a few reports of involvement of a restricted segment of the anterior cerebral artery.¹⁻³ Presentation with a subarachnoid haemorrhage, as in this case, is very uncommon in fusiform aneurysms.⁶

In clipping of a fusiform aneurysm, reconstruction of a new parent artery is important, to avoid postoperative ischaemic complications. Clipping of the aneurysm in our patient was successfully performed, with preservation of the parent artery, by using an angled, fenestrated clip. To our knowledge, this is the first report of a case with subarachnoid haemorrhage secondary to a fusiform aneurysm of the proximal anterior cerebral artery which was obliterated successfully with clipping.

MINORU SHIGEMORI
TOMOYUKI KAWABA
YASUHIRO YOSHITAKE
JUN MIYAGI
SHINKEN KURAMOTO

Department of Neurosurgery
Kurume University School of Medicine
67 Asahi-machi
Kurume, 830
Japan

References

- 1 Goldstein SJ, Tibbs PA. Recurrent subarachnoid hemorrhage complicating cerebral arterial ectasia. *J Neurosurg* 1981;**55**:139-42.
- 2 Little JR, Louis PS, Weinstein M, Dohn DF. Giant fusiform Aneurysm of the cerebral arteries. *Stroke* 1981;**12**:183-8.
- 3 Nakasu Y, Saito A, Handa J. Fusiform aneurysm of the anterior communicating artery. *Surg Neurol* 1984;**21**:511-4.
- 4 Tamura M, Tsukahara Y, Yodonawa M. Fusiform aneurysm of the anterior cerebral artery (A₁ segment). *No Shinkei Geka* 1985;**13**:1337-40. (Jpn.)
- 5 Yu Y, Moseley I, Pullicino P, McDonald W. The clinical picture of ectasia of the intracerebral arteries. *J Neurol Neurosurg Psychiatry* 1982;**45**:29-36.
- 6 Dolenc V. Treatment of fusiform aneurysms of the peripheral Cerebral arteries. Report of two cases. *J Neurosurg* 1978;**49**:272-7.

Accepted 17 October 1987