

## ·病例报告 Case report·

## Spontaneous regression of a giant basilar artery aneurysm in a young adult after surgical injury: case report and literature review

ZHANG He, LI Ming-hua, WANG Chun, LI Yong-dong, XU Tao

中图分类号:R735.7 文献标识码:D 文章编号:1008-794X(2007)-10-0718-03

**[Abstract]** A giant basilar artery aneurysm of young woman with endocrine disturbance was misdiagnosed as a large pituitary adenoma and treated surgically via a trans-sphenoidal approach was planned. But the neurosurgery was finally aborted because of massive bleeding during the procedure. One year later, a cerebral angiography confirmed this basilar artery aneurysm was obviously regressed and then endovascular coiling was successfully performed. No neurological complication occurred post-procedure and the endocrine dysfunction symptom was obviously improved.(J Intervent Radiol, 2007, 16: 718-720)

**[Key words]** Giant basilar artery aneurysm; Sellar haematoma; Cerebral hemodynamics

### Introduction

Spontaneous regression of few cerebral aneurysms has been reported [1-3]. It is possible that spontaneous thrombosis resulting from flow-related hemodynamic changes in the aneurysm may play an important role. However, spontaneous regression of an aneurysm following surgical injury has not been reported previously. Herein, we present a case of basilar artery aneurysm that was subjected to surgical operation, because a clinical misdiagnosis of pituitary adenoma with apoplexy was made finally the operation was quitted due to massive bleeding. And one year later, cerebral angiography showed that the size of the aneurysm was obviously regressed.

### Case report

A 23-year-old woman with amenorrhea about 6

years and progressively vision worsening of left eye over 2 years was admitted into our hospital in 2005. Laboratory tests indicated that the level of pituitary hormone was normal, but with decrease of the free thyroxine 3 (FT3) and free thyroxine 4 (FT4) levels. A serial brain magnetic resonance images (MRI) revealed an ovoid, smooth marginal mass about 3.0 cm in diameter at the sellar region with high signal intensity on T<sub>1</sub>WI and in homogeneous high signal intensity on T<sub>2</sub>WI, and the pituitary gland was obviously compressed and displaced downwards, which has not been fully noticed pre-surgery (Figure 1). Considering the patient's history, a pituitary adenoma with apoplexy was clinically misdiagnosed and a trans-sphenoidal approach neurosurgery was decided to perform. During the procedure, first, 10 ml coffee-like fluid evacuated while the sellar lateral wall being exposed, and then massive bleeding occurred while broaching the mass capsule with a total volume of 2 000 ml blood lost. So that, the surgeon thought of that this mass was actually a giant aneurysm and the operation was immediately aborted. The incision was packed with aseptic gauzes to control the bleeding, the patient was subsequently given conservative

---

Authors setting: 200233, ZHANG He, LI Ming-hua, WANG Chun, LI Yong-dong, XU Tao. Department of Diagnostic and Interventional Radiology and Department of Neurosurgery, Shanghai Sixth People's Hospital, School of Medicine of Shanghai Jiaotong University, Shanghai 200233, China.

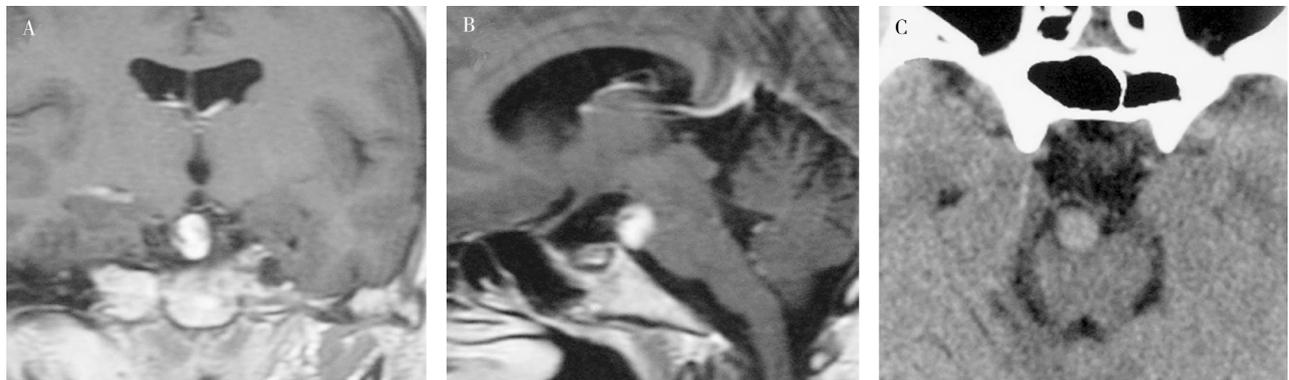
Corresponding Author: LI Ming-hua

therapy without any further surgery. One year later, the brain CT and MRI follow-up were performed. MR images showed the size of aneurysm decreased without intra-aneurysm thrombosis (Figure 2), and CT with maximum intensity projection (MIP) and surface shaded display (SSD) reconstruction images indicated that the aneurysm was obviously regressed to 0.9 cm (Figure 3). Then a cerebral angiography

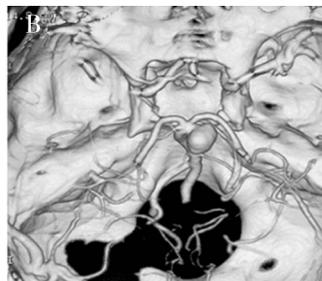
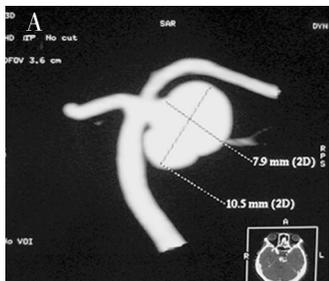
confirmed that this aneurysm originated from the tip of the basilar artery (Figure 4), and nine coils (Matrix STD-SR, Boston Scientific) were successfully placed into the lumen of the aneurysm. Three months after coiling, cerebral angiography showed this aneurysm was totally occluded without any neurological complications (Figure 5), and the clinical symptoms were improved.



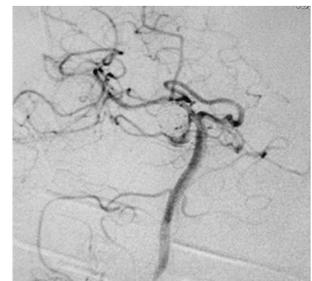
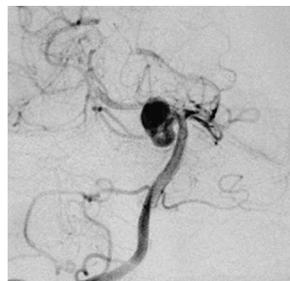
**Figure 1** Brain MR images showed that an ovoid, smooth marginal mass about 3 cm in diameter with high signal intensity on T<sub>1</sub>WI (A, B) and inhomogeneous high signal intensity on T<sub>2</sub>WI (C) and the pituitary gland was obviously compressed and displaced downwards, which was not fully noticed pre-surgery



**Figure 2** Brain MR images showed the size of aneurysm decreased without intra-aneurysm thrombosis



**Figure 3** CT with MIP (A) and SSD (B) reconstruction images displayed that aneurysm was obviously regressed to 0.9 cm in diameter



**Figure 4** DSA confirmed that a giant aneurysm originated from the tip of basilar artery

**Figure 5** DSA in 3 months after coiling showed that aneurysm was totally occluded

### Discussion

Approximately two thirds of the total cases of giant cerebral aneurysm (diameter larger than 2.5 cm)

are found in women, and frequently with origination from the cavernous internal carotid artery and at least 60% of the cases presenting partially thrombosis<sup>[4]</sup>. These lesions are sometimes in-distinguishable from

the tumors of sellar region, and the clinical symptoms of oculomotor nerve disorders, panhypopituitarism or hyperpituitarism may also be<sup>[5,6]</sup> found.

To our knowledge, a case like the present one, in which a giant aneurysm originated from the tip of the basilar artery siting at the sellar region, and clinically mimicked a pituitary adenoma with apoplexy, has not been reported previously. The resolution of flow-related aneurysms in high-flow arteriovenous malformations (AVMs) after flow reduction has been well documented, but spontaneous regression of the unruptured aneurysms which are not related to AVMs is uncommon<sup>[7,8,9,10,11]</sup>. Yeh, Cantore and Giampaolo reported a total of five cases with spontaneous obliteration of cerebral aneurysm after extracranial to intracranial bypass surgery, and pointed out that may be caused by the hemodynamic changes of the parent artery and the formation of turbulence and whirls facilitating thrombotic processes in the lumen of aneurysm<sup>[9-11]</sup>. Considering the radiological findings and the process of the surgery, the authors postulated that the following factors could explain the pathogenesis of this case. First, a large amount of aseptic gauzes were packed to control the bleeding, simultaneously, the aneurismal sac may be also compressed, and resulted in the hemodynamics changes of the inflow or outflow bloodstreams. Second, the underlying thrombosis may contribute to the spontaneous regression of the aneurysm. However, the true mechanism remains to be determined.

## [References]

- [1] Ciceri EF, Lawhead A, Tiziana DS, et al. Spontaneous partial thrombosis of a basilar artery giant aneurysm in a child[J]. *Am J Neuroradiol*, 2005, 26: 56 - 57.
- [2] Hans FJ, Krings MT, Reinges MHT. Spontaneous regression of two supraophthalmic internal cerebral artery aneurysms following flow pattern alteration [J]. *Neuroradiology*, 2004, 46: 469 - 473.
- [3] Moro'n F, Benndorf G, Akpek S, et al. Spontaneous thrombosis of a traumatic posterior cerebral artery aneurysm in a child [J]. *Am J Neuroradiol*, 2005, 26: 58 - 60.
- [4] Macdonald R, Stoodley M, Weir B. Intracranial Aneurysms[J]. *Neurosurgery Quarterly*, 2001, 11: 181 - 198.
- [5] Arseni C, Ghitescu M, Critescu A, et al. Intracranial aneurysm simulating hypophyseal tumours[J]. *Eur Neurol*, 1970, 3: 321 - 329.
- [6] Connor SEJ, Penney CC. MRI in the differential diagnosis of a sellar Mass[J]. *Clin Radiol*, 2003, 58: 20 - 31.
- [7] Redekop G, TerBrugge K, Montanera W, et al. Arterial aneurysms associated with cerebral arteriovenous malformations: classification, incidence, and risk of hemorrhage [J]. *J Neurosurg*, 1998, 89: 539 - 546.
- [8] Senn P, Krauss JK, Remonda L, et al. The formation and regression of a flow-related cerebral artery aneurysm[J]. *Clin Neurol Neurosurg*, 2000, 102: 168 - 172.
- [9] Yeh H, Tomsick TA. Obliteration of a giant carotid aneurysm after extracranial-to-intracranial bypass surgery: case report [J]. *Surg Neurol*, 1997, 48: 473 - 476.
- [10] Cantore G, Santoro A, Da Pian R. Spontaneous occlusion of supraclinoid aneurysms after the creation of extra-intracranial bypasses using long grafts: report of two cases[J]. *Neurosurgery*, 1999, 44: 216 - 219.
- [11] Giampaolo C, Antonio S, Renato DP. Spontaneous occlusion of supraclinoid aneurysms after the creation of extra-intracranial bypasses using long grafts: report of two cases[J]. *Neurosurgery*, 1999, 44: 216 - 219.

(received:2007-05-05)