

# Textiloma as a complication of transsphenoidal surgery

Cheng-Ta Hsieh, MD, Tzu-Tsao Chung, MD, Yu-Hao Chen, MD, Yao-Feng Li, MD, Ming-Ying Liu, MD.

## ABSTRACT

تعد الجراحة عبر العظم الوتدي من العمليات الجراحية السائدة للتحكم بأمراض الحفرة الأمامية والأمراض السرجية، غير أن نسيان قطع القطن أثناء الجراحة يعد من المضاعفات النادرة الحدوث في مثل هذه العمليات. نستعرض في هذا المقال حالة نادرة لنسيان قطع القطن أثناء إجراء الجراحة عبر العظم الوتدي. لقد كانت المريضة قبل العملية تعاني من رؤية مشوشة، وتم تشخيص حالتها على أنها مصابة بورم الغدة النخامية ولهذا السبب أجريت لها العملية. غير أنها ظلت تعاني من صداع متقطع لمدة نصف سنة حتى بعد إجراء العملية، وأظهرت صور الفحوصات التي أجريت لها حافة تشبه الورم المتطور في المنطقة السرجية. وقد تم العثور على قطعة القطن بعد أن خضعت المريضة للجراحة عبر قحف الجمجمة. وقمنا خلال هذا المقال بمناقشة أسباب نسيان قطع القطن خلال الجراحة، وكيفية التغلب على هذه المشكلة، كما قمنا بمراجعة الأدب الطبي الذي استعرض هذه المشكلة.

Transsphenoidal surgery is the mainstream in the management of sellar and anterior fossa diseases. However, textiloma, as known as cotton left behind during an operation, is rarely reported as a complication of transsphenoidal surgery. In this paper, we present a case of textiloma after transsphenoidal surgery. The patient had been suffering progressive blurred vision and she received transsphenoidal surgery for the diagnosis of pituitary tumor. However, the intermittent headaches persisted for half a year after the surgery. The subsequent images revealed a rim-like enhanced tumor in the sellar region. The retained cotton material was found when she underwent transcranial surgery. The etiology and management of textiloma are discussed, and the relevant literature also reviewed.

*Neurosciences 2011; Vol. 16 (4): 369-371*

From the Departments of Neurological Surgery (Hsieh, Chung, Chen, Liu), and Pathology (Li), Tri-Service General Hospital, Taipei, the Division of Neurosurgery, Department of Surgery (Hsieh), Sijih Cathay General Hospital, New Taipei, and the Division of Neurosurgery, Department of Surgery (Chen), Army Force Taichung General Hospital, Taichung, Taiwan, Republic of China.

Received 9th April 2011. Accepted 11th July 2011.

Address correspondence and reprint request to: Dr. Ming-Ying Liu, Department of Neurological Surgery, Tri-Service General Hospital, No. 325, Sec. 2, Cheng-Kung Road, Neihu District, Taipei 114, Taiwan, Republic of China. Tel. +886 (2) 87927177. Fax. +886 (2) 87927178. E-mail: nogor@mail2000.com.tw

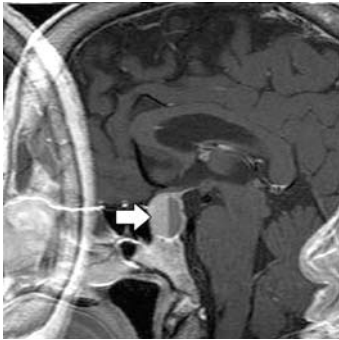
Textiloma as known as gossypiboma, muslinoma, or gauzoma, is used to describe the inflammatory pseudotumor resulting from a foreign body such as unabsorbable cotton left behind during surgery.<sup>1</sup> Textiloma is a well-known complication and mostly reported in abdominal and orthopedic surgical procedures.<sup>2</sup> However, with an increase of transsphenoidal procedures, textiloma has not been described as a complication in the literature.<sup>3</sup> Here, we report a case of textiloma following transsphenoidal surgery and review the relevant literature. Our objective in presenting this particular case is to highlight the presentation and possible cause of textiloma following transsphenoidal surgery.

**Case Report.** A 63-year-old female presented with a 3-year complaint of blurred vision and progressive headache in January 2009. Neurological examinations show a typical figure of bitemporal hemianopsia. The MR images of the brain revealed a sellar tumor measuring 1.4 x 1.6 x 2.1 cm with a cystic component, compressing the optic chiasm (Figure 1). Pituitary adenoma with apoplexy was considered, and she underwent transsphenoidal surgery in February 2009. At surgery, massive bleeding occurred and hemostatic materials including cotton were used to control the bleeding. The surgery lasted approximately 6 hours. The previous neurological deficits gradually improved after surgery. However, intermittent headaches persisted for half a year after surgery. A CT scan of the brain revealed a residual enhancing nodular lesion measuring 2.4 cm in diameter located in the posterior portion of the sellar fossa. At her second admission, no fever was observed. The laboratory examinations disclosed a white cell count of 7000/mm<sup>3</sup>. The subsequent MR images of the brain revealed a mass, which appeared as hypointense on T1-weighted and hyperintense on T2-weighted MR images. The T1-weighted MR images with contrast medium showed an enhanced hyperintense rim around the hypointense center (Figure 2). With the MRI results, she underwent transcranial surgery to remove the residual lesion. At surgery, one

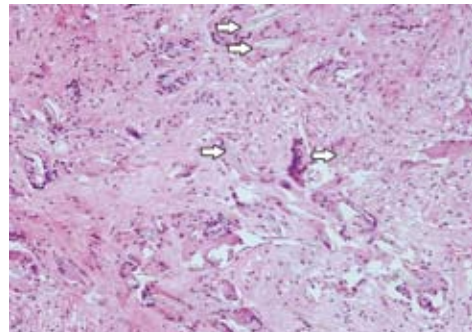
well-capsulated mass located in the sellar fossa was found, which was compressing the optic chiasm. While opening the tumor capsule, retained cotton material was seen within the capsule. Pathological examinations of the material revealed an inflammatory reaction consisting of histocytes and multi-nucleated giant cells surrounding the cotton material, which confirmed the diagnosis of foreign body textiloma (Figure 3). She was discharged on the seventh postoperative day. No recurrent or febrile symptoms were noted. A subsequent MRI revealed a residual capsule attaching to the optic chiasm (Figure 4).

**Discussion.** Various forms of cotton pledgets and muslin are commonly used to control bleeding during operation. Some cotton may be left behind in the surgical site inadvertently or deliberately, which induces an inflammatory reaction, forming a textiloma.<sup>1</sup> Although the textiloma is a well-known complication mostly occurring in abdominal and orthopedic surgery, it is rarely described in the neurosurgical field.<sup>4</sup> In the literature,<sup>5,6</sup> the incidence of intracranial textiloma is highest following surgeries for wrapping intracranial

aneurysms, which cannot be managed with a clipping method, followed by surgeries for intracranial meningiomas, especially the falcine meningiomas. More recently, with the increasing transsphenoidal procedures for sellar and anterior fossa lesions, several complications such as epistaxis, sinusitis, cerebrospinal fluid leakage, meningitis, subarachnoid hemorrhage, and cranial nerve palsy are well-documented.<sup>3</sup> As the textiloma results from the accidental retention of cotton-based materials during surgeries, the time of its presentation immediately varies from postoperatively to several decades after initial surgery.<sup>7</sup> However, most radiological abnormalities of textiloma are detected in the first 6 months due to the standard practice of following up with MR images to monitor residual lesion, or to detect recurrence.<sup>4</sup> Otherwise, the maximal time of acute inflammatory reaction is the other possible reason to identify a textiloma within 6 months after initial surgery.<sup>1</sup> Textiloma as a foreign body can induce the inflammatory reaction, many diseases associated with inflammatory reactions such as recurrent tumors, radiation necrosis, abscess or resolving infarct or hematoma should be considered as



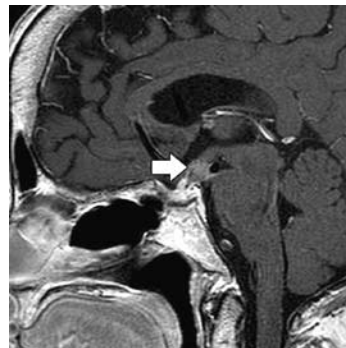
**Figure 1** - T1-weighted MR image with contrast medium demonstrated an enhanced sellar tumor with cystic component (white arrow).



**Figure 3** - The section showed pictures of foreign body granuloma characterized by chronic granulomatous inflammation with histiocytes, multi-nucleated giant cells, and some foreign body material (white arrows) (Hematoxylin & Eosin stain x 200).



**Figure 2** - T1-weighted MR image with contrast medium demonstrated an enhanced hyperintense rim around the hypointense center (white arrow).



**Figure 4** - The postoperative MR image revealed a residual capsule attaching to the optic chiasm (white arrow).

a differential diagnosis of textiloma.<sup>1,4</sup> However, due to the characteristic features of cotton, plain radiographs, CT scan, or sonogram are less diagnostic. Magnetic resonance images have been thought to be the best diagnostic modality for textiloma.<sup>8</sup> Due to the aseptic fibrous tissue reaction involving adhesion formation, encapsulation, and granulomatous formations, the appearance of textiloma is characterized as hypointense on T1-weighted and hyperintense on T2-weighted MR images.<sup>9</sup> The T1-weighted MR images with contrast medium show an enhanced hyperintense around the hypointense center. A “folded fabric appearance” within the cystic mass on T2-weighted MR images has been suggested as a specific feature for textiloma.<sup>10</sup> In the management of textiloma, a secondary operation is considered to ascertain the diagnosis and to remove the foreign body.<sup>1</sup> However, the retained hemostatic agents should be removed during every operation to prevent this complication, which may result in legal problems.

In conclusion, textiloma induced by retained cotton is rarely reported as a complication of transsphenoidal procedures for pituitary tumor, and should be considered as a differential diagnosis of recurrent tumor, tumor progression, or postoperative abscess.

## References

- Ribalta T, McCutcheon IE, Neto AG, Gupta D, Kumar AJ, Biddle DA, et al. Textiloma (gossypiboma) mimicking recurrent intracranial tumor. *Arch Pathol Lab Med* 2004; 128: 749-758.
- Yamamura N, Nakajima K, Takahashi T, Uemura M, Nishitani A, Souma Y, et al. Intra-abdominal textiloma. A retained surgical sponge mimicking a gastric gastrointestinal stromal tumor: report of a case. *Surg Today* 2008; 38: 552-554.
- Gondim JA, Schops M, de Almeida JP, de Albuquerque LA, Gomes E, Ferraz T, et al. Endoscopic endonasal transsphenoidal surgery: surgical results of 228 pituitary adenomas treated in a pituitary center. *Pituitary* 2010; 13: 68-77.
- Kothbauer KF, Jallo GI, Siffert J, Jimenez E, Allen JC, Epstein FJ. Foreign body reaction to hemostatic materials mimicking recurrent brain tumor. Report of three cases. *J Neurosurg* 2001; 95: 503-506.
- Brady KM, Font RL, Lee AG. Muslin-induced intracranial sterile abscess: a cause of visual loss after aneurysm repair. *Surg Neurol* 1999; 51: 566-567.
- Kirollos RW, Tyagi AK, Marks P0V, van Hille PT. Muslin induced granuloma following wrapping of intracranial aneurysms: the role of infection as an additional precipitating factor. Report of two cases and review of the literature. *Acta Neurochir (Wien)* 1997; 139: 411-415.
- Rajput A, Loud PA, Gibbs JF, Kraybill WG. Diagnostic challenges in patients with tumors: case 1. Gossypiboma (foreign body) manifesting 30 years after laparotomy. *J Clin Oncol* 2003; 21: 3700-3771.
- Mathew JM, Rajshekhar V, Chandy MJ. MRI features of neurosurgical gossypiboma: report of two cases. *Neuroradiology* 1996; 38: 468-469.
- Mochizuki T, Takehara Y, Ichijo K, Nishimura T, Takahashi M, Kaneko M. Case report: MR appearance of a retained surgical sponge. *Clin Radiol* 1992; 46: 66-67.
- Turgut M, Akyüz O, Ozsunar Y, Kacar F. Sponge-induced granuloma (“gauzoma”) as a complication of posterior lumbar surgery. *Neurol Med Chir (Tokyo)* 2005; 45: 209-211.

## Corrections, retractions and “Expressions of Concern”

Excerpts from the Uniform Requirements for Manuscripts Submitted to Biomedical Journals updated November 2003. Available from [www.icmje.org](http://www.icmje.org)

The corrections should appear on a numbered page, be listed in the contents page, include the complete original citation and link to the original article and vice versa if online.

The retraction and expression of concern, appear on a numbered page in a prominent section of the print journal as well as in the online version, be listed in the contents page, and include in its heading the title of the original article. The text of the retraction should explain why the article is being retracted and include a full original citation reference to it.

Editors may ask the author’s institution to assure them of the validity of earlier work published in their journals or to retract it. If this is not done editors may choose to publish an announcement expressing concern that the validity of previously published work is uncertain.