

## Sheehan's like syndrome in a man

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An 84-year-old physician self-diagnosed a bilateral upper quadrantanopia on routine eye testing and magnetic resonance imaging (MRI) confirmed a large non-functioning pituitary macroadenoma associated with chiasmal compression. Investigation showed partial hypopituitarism with disconnection hyperprolactinaemia (prolactin 1095 mU/L (60-300)), and he was treated with hormonal replacement with thyroxine and prednisolone 3mg. He was offered a transphenoidal hypophysectomy, but he chose a conservative approach. Two years later, his visual fields worsened (Fig 1A) corresponding to an increase in macroadenoma size. He elected to have major shoulder surgery before the pituitary surgery. Immediately after the shoulder surgery, he vomited several times with hypotension and developed severe visual field restriction. MRI showed pituitary infarction (Fig 1B). He did not require immediate surgical intervention. A few weeks later, the patient noticed dramatic improvement in his vision. The prolactin level dropped from the peak level of 1095 to 48 milliunit/L (60-300), suggesting lactotroph infarction. Repeated pituitary MRI showed dramatic reduction in the height of the pituitary macroadenoma with the improvement in visual fields (Fig 1C).

Sheehan's syndrome (SS) was first described by Harold L. Sheehan in 1937 on morphologic examination of the pituitary glands on autopsies of women who had died with postpartum hemorrhage (1). The histological hallmark was ischemic necrosis of the anterior pituitary. It was suggested that two basic conditions are necessary for the development of SS (2). First, the physiological enlargement of the pituitary gland during pregnancy, which is attributable to the 10-fold increase in lactotrophs size and number (3). The second factor is the unique blood flow of the pituitary gland through the hypothalamic-portal circulation that makes the gland vulnerable to infarction as a consequence of decrease blood flow with a fall in arterial blood pressure.

Pituitary apoplexy (PA) is defined as hemorrhage or infarction of the pituitary adenoma (4). Conditions that lead to decrease systemic blood pressure like major surgery, specifically cardiac and orthopaedic surgeries can result in blood supply reduction and infarction to the pituitary adenoma as a sequence (5).

In most human tumours, angiogenesis provides the tumour tissues with adequate oxygen and glucose. However, the role of angiogenesis in pituitary tumours development has been questioned, as they are less vascularized than normal pituitary tissue (6). Hypotension secondary to massive bleeding in non-pregnant individuals does not cause SS, however it can cause infarction of either the enlarged pituitary or pituitary adenoma. Therefore, the pituitary is vulnerable to infarction either in the presence of a tumour or at the end of pregnancy, both times of pituitary enlargement.

In developed countries, SS may be less likely to be seen, however, pituitary adenoma infarction precipitated by postoperative hypotension could be recognized as a second face of Sheehan's syndrome.

**Fig 1 legend:** (A) Visual field and T1 pituitary MRI images prior to shoulder surgery. (B) T1 pituitary MRI images showing pituitary adenoma infarction. (C) Visual field and T1 pituitary MRI images post adenoma infarction.

### References:

- 1- Sheehan HL. Postpartum necrosis of the anterior pituitary. *J Pathol Bacteriol* 1937;45:189–214.
- 2- Halit Diri H, Karaca Z, Tanriverdi F, Unluhizarci K, Kelestimur F. Sheehan's syndrome: new insights into an old disease. *Endocrine* 2016; 51:22–31.
- 3- Berga S, Nitsche J, Braunstein G. Endocrine Changes in Pregnancy. In: Melmed S, Polonsky K, Larsen P, Kronenberg H (eds), *Williams Textbook of Endocrinology*, 13<sup>th</sup> edn. Philadelphia: Elsevier, 2016:835.
- 4- Biousse V, Newman NJ, Oyesiku NM. Precipitating factors in pituitary apoplexy. *J Neurol Neurosurg Psychiatry* 2001;71:542–545.
- 5- Wildemberg LE, Glezer A, Bronstein MD, Gadelha MR. Apoplexy in nonfunctioning pituitary adenomas. *Pituitary* 2018 ;21:138–144.
- 6- Cristina C, Luque G, Demarchi G, Vicchi F, Zubeldia-Brenner L, Millan M, Perrone S, Ornstein A, Lacau-Megido I, Berner S, Becu-Villalobos D. Angiogenesis in Pituitary Adenomas: Human Studies and New Mutant Mouse Models. *International Journal of Endocrinology* 2014, Article ID 608497, 11 pages <https://doi.org/10.1155/2014/608497>.

