The dominant mechanism for hypopituitarism and hyperprolactinemia commonly observed in patients with pituitary macroadenomas was postulated to be increased intrasellar pressure (ISP) caused by the slow and gradual expansion of adenomas within the sella turcica.

Hemorrhagic infarction of adenomas (pituitary tumor apoplexy) is associated with a rapid, rather than gradual, increase in intrasellar contents. The impacts of the sudden increase in intrasellar contents on ISP and pituitary function are unknown. ISP and pituitary function were determined in 13 patients with pituitary tumor apoplexy who had surgical decompression within 1 wk of symptoms' onset. ISP measurements were remarkably high (median, 47 mm Hg), whereas serum prolactin (PRL) concentrations were generally low (median, 3.5 microg/liter). There was an inverse correlation ($r = -0.76$; $P < 0.01$) between ISP measurements and serum PRL concentrations. Postoperatively, partial recovery or maintenance of pituitary function was noted in seven of 13 patients. These seven patients had higher ($P = 0.013$) serum PRL levels (9.3 +/- 7.4 microg/liter) and lower ($P < 0.001$) ISP measurements (35.9 +/- 7.3 mm Hg) than the respective values in the remaining six with persistent postoperative hypopituitarism (1.6 +/- 0.6 microg/liter and 55.9 +/- 2.4 mm Hg, respectively). The low serum PRL levels in patients with tumor apoplexy suggested that ischemic necrosis of the anterior pituitary resulting from sudden and extreme elevation of ISP was commonly observed in this setting. A normal or elevated serum PRL level in patients with non-PRL-secreting macroadenomas indicates the presence of viable pituitary cells and the high likelihood of postoperative recovery of pituitary function [1].

1)
Zayour DH, Selman WR, Arafah BM. Extreme elevation of intrasellar pressure in patients with pituitary tumor apoplexy: relation to pituitary function. J Clin Endocrinol Metab. 2004 Nov;89(11):5649-54. PubMed PMID: 15531524.