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Vézina J L & Sutton T J. Prolactin-secreting pituitary microadenomas: roentgenologic diagnosis. *Amer. J. Roentgenol.* **120**:46-54, 1974.
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Criteria for the diagnosis of small pituitary adenoma in females presenting with amenorrhea, galactorrhea, and hyperprolactinemia were originally presented in the radiological literature in this article. Microsurgical removal of these small lesions resulted in restoration of normal serum prolactin values and return to fertility. [The *SCI*® indicates that this paper has been cited in over 185 publications, ranking it among the ten most-cited papers ever published in this journal.]

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"Ten years ago, pathology textbooks described pituitary adenomas arising from any of three basic cells, the cellular types being the chromophobes accounting for approximately 50 percent of adenomas, the acidophils accounting for 35 percent, and the basophils accounting for the remaining 15 percent. Our article, proposing criteria for the diagnosis of prolactin-secreting pituitary adenomas, was bound to disrupt these percentages, but the impact turned out to be much greater than anticipated. In fact, during the last decade, and as a consequence of the study of large numbers of pathological specimens of the pituitary, it is now recognized that prolactinomas account for more than 50 percent of all pituitary adenomas, leaving little space for chromophobe tumors.

"The circumstances that came to favour this article were twofold. First was my privileged association with an inventive neurosurgeon, J. Hardy, who had pioneered microsurgery of the pituitary fossa by the trans-sphenoidal approach. With a binocular operative microscope, Hardy could selectively remove small pituitary adenomas while preserving the residual pituitary gland, affording cure without loss of normal pituitary functions.

"In this respect, our first radiological survey had covered a group of 80 acromegalic patients of whom 75 percent presented an enlarged sella on plain films of the skull. In the remaining 25 percent, a millimetric tomographic study of the sella revealed subtle positive changes in all cases. On this basis, we described the radiological changes of what we called 'microadenomas' and presented a classification of pituitary lesions based on sellar findings.[1] This classification is now widely used and allows medical centers around the world to compare methods and results of treatment of pituitary adenomas in their different stages.

"The concurrent development of a biochemical method to identify and accurately quantify the human serum prolactin hormone with radioimmunoassay was the second major factor leading to our publication. The new method, discovered in Montréal by Friesen,[2] focussed considerable interest on the amenorrhea-galactorrhea syndromes. This led us to investigate a group of female patients in our infertility clinic presenting hyperprolactinemia with a normal-sized sella on skull radiographs. In many of these patients, the millimetric tomographic studies showed subtle sellar changes somewhat similar to those seen in our acromegalic patients. Small adenomas were selectively removed and were confirmed as prolactin adenomas by electron microscopy. In a high percentage of these patients, we observed postoperative normalization of prolactin levels and recovery of fertility.

"This *Citation Classic* article was a first report and it was actually based on the tomographic evaluation of the sella turcica in 14 female patients presenting fine radiological changes caused by a prolactin microadenoma. These findings were presented at the Symposium Radiologicum in 1974 and they were published in *Acta Radiologica*.[3] In 1977, at the First International Symposium on Prolactin Hormone, we presented a series of 160 patients of whom 20 were males. As radiological signs had become more precise, they were proposed in a well-illustrated publication of the proceedings.[4] In that article, we reemphasized our original classification of pituitary adenomas with four stages. In 1981, we published the radiological findings and classification covering 355 prolactinomas (300 females, 55 males), introducing the new concept of a proportional relationship between the levels of serum prolactin and the size of the tumor.[5]

"The sequential articles based on the diagnostic potential of millimetric tomography have provided indirect evidence of pituitary tumors. Recent high resolution CT and NMR scanners have added a considerable dimension by showing directly the tiny intrapituitary tumor, thus confirming our original hypothesis that patients with normal-sized sellae can harbour a pituitary microadenoma leading to subtle sellar findings."

1. **Vézina J L & Maltais R.** La selle turcique dans l'acromégalie: étude radiologique. *Neurochirurgie* 19(Suppl. 2):35-56, 1973. (Cited 30 times.)
2. **Friesen H, Webster R, Hwang P, Guyda H, Munro R E & Read L.** Prolactin synthesis and secretion in patient with Forbes-Albright syndrome. *J. Clin. Endocrinol. Metab.* 34:192-9, 1972. (Cited 60 times.)
3. **Vézina J L, Sutton T J, Maltais R & Hardy J.** Prolactin secreting pituitary micro-adenomas. *Acta Radiol. Suppl.* 347:561-6, 1975.
4. **Vézina J L.** Prolactin secreting pituitary adenomas: radiologic diagnosis. (Robyn C & Harter M, eds.) *Progress in prolactin physiology and pathology.* Amsterdam: Elsevier/North-Holland Biomedical Press, 1978. p. 351-61.
5. ----------. Le prolactinome: aspect radiologique de la selle turcique. *Neurochirurgie* 27(Suppl. 1):19-29, 1981.