

GIANT AND INVASIVE PITUITARY ADENOMAS IN THE ELDERLY

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ABSTRACT: Clinical presentation of pituitary adenomas is influenced by age of patients and stage of the tumour at diagnosis. In this study we intended to analyse the features of pituitary adenomas in old patients. It is a retro- and prospective study concerning 37 patients aged 60 years and over, harbouring a pituitary adenoma. Patients with giant and/or invasive tumours which means tumours ≥ 40 mm or tumours invading the cavernous sinuses (G1) were compared to patients with tumours < 40 mm without cavernous sinuses involvement (G2). Results : 38% (N=14) of the tumours were giants and/or invasive, the adenoma size was $40,53 \pm 11,38$ mm in G1 (with involvement of cavernous sinuses in 16%) and $22,7 \pm 7,96$ mm in G2, patients of G1 were older than those of G2 : $70,71 \pm 6,70$ years vs $66,17 \pm 5,41$ years. Neuro-ophthalmological manifestations were appealing in 78% in G1 and 61% in G2 ; the tumour was incidentally discovered in 21% in G2 and 7% in G1. No secreting adenomas were the more prevalent in the two groups (64% in G1 and 61% in G2) ; GH secreting adenomas were recorded only in G2. Pituitary deficiency wasn't different between the two groups (61% in G1 vs 60% in G2). Severe visual loss was more prevalent in G1 than G2 : 71% vs 33%. Pituitary adenomas in the elderly are often large and invasive, predominantly non secreting and frequently diagnosed late at an advanced stage of visual loss and pituitary deficiency.

Key words : *Pituitary adenoma, Giant adenoma, Invasive adenoma, Elderly*

RÉSUMÉ: La présentation clinique des adénomes hypophysaires est influencée par l'âge des patients et le stade de la tumeur. Le but de notre travail est d'analyser les caractéristiques des adénomes hypophysaires chez les sujets âgés. Il s'agit d'une étude rétro- et prospective concernant 37 patients âgés de 60 ans et plus, porteurs d'un adénome hypophysaire. Les patients présentant un adénome géant (≥ 40 mm) et/ou un adénome envahissant le sinus caverneux (G1) ont été comparés aux patients porteurs d'un adénome < 40 mm sans envahissement du sinus caverneux (G2). Résultats : 38% (N=14) des adénomes étaient géants et/ou invasifs, la taille moyenne des adénomes était de $40,53 \pm 11,38$ mm dans G1 (avec envahissement du sinus caverneux dans 16%) et $22,7 \pm 7,96$ mm dans G2. L'âge moyen des patients était de $70,71 \pm 6,70$ ans dans G1 vs $66,17 \pm 5,41$ dans G2. Les signes neuro-ophthalmologiques étaient le motif de consultation dans 78% dans G1 et 61% dans G2 ; l'adénome a été découvert fortuitement (incidentalome hypophysaire) dans 21% dans G2 et 7% dans G1. Les adénomes étaient le plus souvent non fonctionnels : 64% dans G1, 61% dans G2 ; les adénomes somatotropes étaient retrouvés seulement dans G2. L'insuffisance antéhypophysaire n'était pas différente entre les deux groupes : 61% dans G1 et 60% dans G2. Le retentissement visuel était plus fréquent dans G1 : 71% vs 33% dans G2. Les adénomes hypophysaires chez les sujets âgés sont ainsi fréquemment géants et invasifs, il s'agit le plus souvent d'adénomes non fonctionnels diagnostiqués tardivement au stade de complications ophtalmologiques et d'insuffisance antéhypophysaire.

Mots clés : *Adénome hypophysaire, Adénome géant, Adénome invasif, Sujets âgés.*

INTRODUCTION

Pituitary adenomas (PA) are deemed to be rare in old patients ; however, with increasing in life expectancy and improvement in health care more pituitary tumours will be diagnosed in old patients. Little is known about PA in the elderly, what are the most frequently presenting

symptoms, what are their phenotypes and what are their repercussions. Furthermore, physiological changes and comorbidities of old patients can delay the diagnosis and may significantly influence clinical presentation and outcome of these tumours. The aim of our study is to analyze the features of giant and invasive adenomas in patients aged 60 years and over.

SUBJECTS AND METHODS

This is a retro- and prospective study concerning 37 patients (19F/18M) aged 60 years and over harbouring a pituitary adenoma, these patients were divided into two groups : Group 1 (G1) are patients with giant and/or invasive tumours which means tumours ≥ 40 mm (Fig. 1) or tumours invading the cavernous sinuses (Fig. 2). Group 2 (G2) are patients with tumours < 40 mm without cavernous sinuses involvement. Presenting symptoms were reviewed ; all patients underwent a thorough clinical examination, hormonal, radiological and visual assessment.

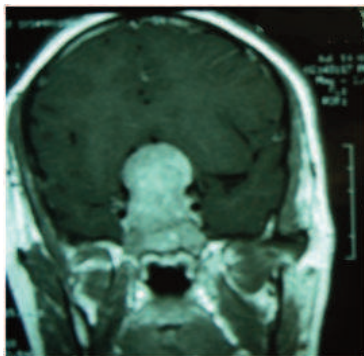


Fig. 1 : Coronal MRI : Giant adenoma

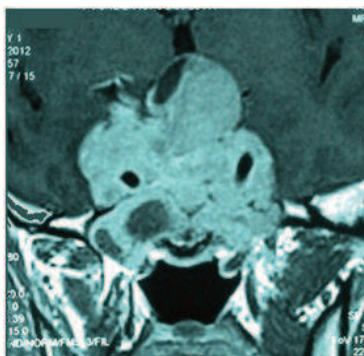


Fig. 2 : Coronal MRI : Giant adenoma invading cavernous sinuses

RESULTS

Among 37 adenomas, 38 % (N=14, 9F/5M) were giants and/or invasive. Adenoma size was $40,53 \pm 11,38$ mm in G1 and $22,7 \pm 7,96$ mm in G2. Cavernous sinuses were involved in 16 %. Patients of G1 were older than those of G2 : $70,71 \pm 6,70$ years vs $66,17 \pm 5,41$ years. Neuro-ophthalmological complaints were the most frequent appealing symptoms, present in 78% in G1 and 61% in G2, appealing symptoms are described in Table 1.

The adenomas were most often non functioning in both groups : 64% in G1 and 61% in G2, the nature of pituitary adenoma

is reported in Table 2. Hormonal assessment revealed pituitary deficiency in 61% in G1 and 60% in G2 whereas visual evaluation found visual impairment in 71% in G1 and 33% in G2.

Appealing symptoms	G1	G2
Neuro-ophthalmological symptoms	78%	61%
Endocrinological symptoms (acromegalic features, decreased libido, signs of pituitary deficiency)	15%	18%
Incidental discovery	7%	21%

Table 1 : Appealing symptoms

Nature of pituitary adenoma	G1	G2
Non functioning adenoma	64%	61%
GH secreting adenoma	00%	22%
Prolactinoma	22%	13%
Gonadotroph adenoma	14%	04%

Table 2 : Nature of pituitary adenoma

DISCUSSION

Pituitary adenomas in the elderly are deemed to be rare representing less than 10% of all PA [1], although autopsies studies didn't find differences in the prevalence of PA between old and young patients suggesting that many adenomas are undiagnosed in old subjects [2]. However, incidence of PA is increasing due to the increase in life expectancy in one side, on the other side and because old people are prone to neurovascular and neurocognitive diseases, more neuro imaging procedures are performed so many pituitary tumours are incidentally discovered. In our study, in contrast to autopsy series where micro adenomas and prolactinomas are predominating, we found a preponderance of macro adenomas and non functioning adenomas as reported by other authors [3-5], Hong and al in their report of 103 adenomas, all were macro adenomas and 75% were non functioning [5]. 38% of our adenomas were aggressive tumours either giants ones or adenomas invading cavernous sinuses, age related changes and associated diseases may explain the delay in diagnosis and the invasiveness of PA as visual abnormalities and clinical manifestations of hypopituitarism are often attributed to ageing. In our study GH secreting adenomas

were smaller and less invasive than other types, they were diagnosed only in G2, an age related decrease in cell proliferation rate has been observed in GH secreting adenomas in old patients [6]. Conversely, prolactinomas as we observed present clinically as non secreting and are usually invasive [7].

Pituitary tumours are increasingly recognized on cerebral imaging performed for other complaints [8] especially in the less invasive tumours as we observed, PA were incidentally discovered only in G2, though these incidentalomas are not really asymptomatic as some of these patients have longstanding symptoms compatible with pituitary tumours that have been misattributed to ageing. Pituitary adenomas in the elderly have frequent and severe repercussions on vision and pituitary function as reported by others [3, 8] notably in invasive lesions as we observed.

CONCLUSION

Due to age related changes and comorbidities, pituitary adenomas are usually diagnosed late in the elderly at an advanced stage of visual loss and pituitary damage. With improvements of life expectancy these lesions will become more common, so we shall make close attention to patient's complaints and not systematically attribute these complaints to ageing in order to make an earlier diagnosis and improve patient's outcome.

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