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Revisiting Pituitary Incidentalomas: Insights from Prevalence Data and Consensus Recommendations

Yoon-a Hwang, Cheol Ryong Ku

Division of Endocrinology, Department of Internal Medicine, Institute of Endocrine Research, Yonsei University College of Medicine, Seoul, Korea

A pituitary incidentaloma is defined as a lesion in the sellar or parasellar region that is detected incidentally on imaging performed for reasons unrelated to suspected pituitary disease. Although patients may already exhibit subtle signs of hormone excess, hypopituitarism, or mass effect, imaging is typically conducted for indications other than suspicion of a pituitary lesion. Among such incidental findings, pituitary adenomas are the most common, followed by Rathke cleft cysts and empty sella. The recently published consensus guideline from the Pituitary Society provides a comprehensive framework for evaluating and managing pituitary incidentalomas.

The consensus guideline recommends baseline endocrine testing for all patients with incidentally discovered sellar or parasellar lesions. This should include assays for prolactin, insulin-like growth factor 1, cortisol, thyroid function, and gonadal hormones when indicated, as well as dedicated sellar magnetic resonance imaging (MRI) to characterize the lesion more precisely. Ophthalmologic evaluation is also recommended when the pituitary incidentaloma abuts the optic chiasm or when patients report visual symptoms. If the pituitary incidentaloma is found to be hormone-secreting, it should be managed according to established protocols for that endocrine disorder. Surgery is recommended for patients with visual field defects, cranial neuropathies, or pituitary apoplexy.

The consensus guideline further specifies that follow-up should be individualized based on lesion size, anatomical location, and clinical context. Macroadenomas are generally monitored with MRI every 6 to 12 months initially, with the interval extended to every 1 to 2 years if stability is demonstrated. Microadenomas are typically followed every 2 to 3 years, with longer intervals if no growth is observed. Pituitary incidentalomas that abut the optic chiasm—particularly those within 5 mm—require closer surveillance because of the risk of visual compromise. Hormonal evaluation is recommended every 1 to 2 years. For visual assessment, the guideline recommends repeating visual field testing at 6 months in patients with suprasellar extension when surgery is not performed, at 1 to 2 years in those with macroadenomas, and at 6 to 12 months in macroadenomas undergoing annual MRI surveillance. The development of new symptoms such as visual impairment, neurological deficits, or hormonal dysfunction necessitates earlier reassessment.

Regarding prevalence, a review of 33 autopsy studies reported a prevalence of pituitary incidentalomas of about 10.7% [1,2], whereas imaging studies showed a more conservative pooled prevalence of 3.4% on MRI [1]. Kim et al. [3] examined 120 pituitary glands from Korean forensic autopsy cases and identified eight tumors, yielding a prevalence of 6.7%, consistent with estimates cited in the consensus guideline. By contrast, an analysis of national insurance data from 2009 to 2013, using the International Classification of Diseases, 10th Revision (ICD-10) code

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Corresponding author: Cheol Ryong Ku
Division of Endocrinology, Department of Internal Medicine, Institute of Endocrine Research, Yonsei University College of Medicine, 50-1 Yonsei-ro, Seodaemun-gu, Seoul 03722, Korea
Tel: +82-2-2228-2265, **Fax:** +82-2-2228-0872, **E-mail:** cr079@yuhs.ac

Table 1. Prevalence of Pituitary Incidentalomas by Study Type

Study type	No. of studies	Total no. of pituitaries examined	Total no. of adenomas found	Frequency, %
Autopsy series [1]	33	19,387	2,084	10.7
CT studies [1]	5	7,958	31	0.4
MRI studies [1]	16	28,558	973	3.41
Administrative registry using Korea NHIS [4]	1	-	-	0.03

CT, computed tomography; MRI, magnetic resonance imaging; NHIS, National Health Insurance Service.

for pituitary adenoma (D35.2), found a prevalence of only 289 cases per 100,000 population (0.029%) in 2013 (Table 1) [4]. This prevalence is markedly lower than that reported in autopsy series or epidemiologic studies. The discrepancy may reflect methodological differences—autopsy, imaging, and administrative coding—but also raises the possibility of under-recognition in insurance-based registries. Additional population-based imaging studies in Korea would help clarify the true prevalence of pituitary incidentalomas.

An important consideration is how to interpret the relatively high prevalence of pituitary incidentalomas—about 10% in autopsy studies and 3% in MRI-based studies. The finding of a 10% prevalence in autopsy series suggests that this phenomenon cannot be attributed solely to a screening effect and instead prompts questions about its clinical significance. Within MRI cohorts, clinically relevant incidentalomas occur at much lower rates, estimated at 78–94 per 100,000 [1]. Epidemiological research by Graffeo et al. [5] in Olmsted County, Minnesota, using a population-based patient registry, demonstrated that the prevalence of pituitary adenomas increased with the introduction and expanded use of MRI. However, the proportion of incidentally diagnosed adenomas has remained relatively stable at approximately 30% of newly diagnosed cases, suggesting that factors beyond a screening effect may contribute. The detection rate of pituitary incidentalomas in brain screening examinations is less than 1%, whereas in imaging studies performed for suspected pituitary disease, detection rates exceed 10% [6]. Furthermore, a systematic review of 11 studies found that growth occurred in approximately 3.3 per 100 person-years for microadenomas and 12.5 per 100 person-years for macroadenomas [1]. However, outcomes varied considerably across studies due to differences in design, cohort size, imaging methods, and follow-up duration. In another systematic review by Rikvold et al. [7], the overall risk of developing new endocrinopathies was 0.9 per 100 person-years, while the risk of requiring surgery ranged from 0.0 to 7.7 per 100 person-years. These findings suggest that adverse outcomes are relatively uncommon and support the generally indolent course of most pituitary incidentalomas, reinforcing the rationale for individualized surveillance strategies.

Taken together, these findings indicate that the reported high prevalence of pituitary incidentalomas—approaching 10% in autopsy studies—should be interpreted with caution. While the phenomenon is strongly influenced by the increased use of neuroimaging, it cannot be explained by a screening effect alone. More clinically silent lesions are being uncovered in otherwise asymptomatic individuals. Nonetheless, most pituitary incidentalomas demonstrate indolent behavior, remaining stable for years without causing endocrine dysfunction or mass effect.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

ORCID

Yoon-a Hwang *https://orcid.org/0000-0002-6933-0564*
Cheol Ryong Ku *https://orcid.org/0000-0001-8693-9630*

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