

# RADIO-INDUCED MENINGIOMA: A LONG-TERM CONSEQUENCE OF PITUITARY RADIOTHERAPY

*Páramo Fernández C, López Vázquez Y, Barragáns Pérez M, Trigo Barros C, Martínez González Á, Lago Garma J.*  
Complejo Hospitalario Universitario de Vigo (Spain).

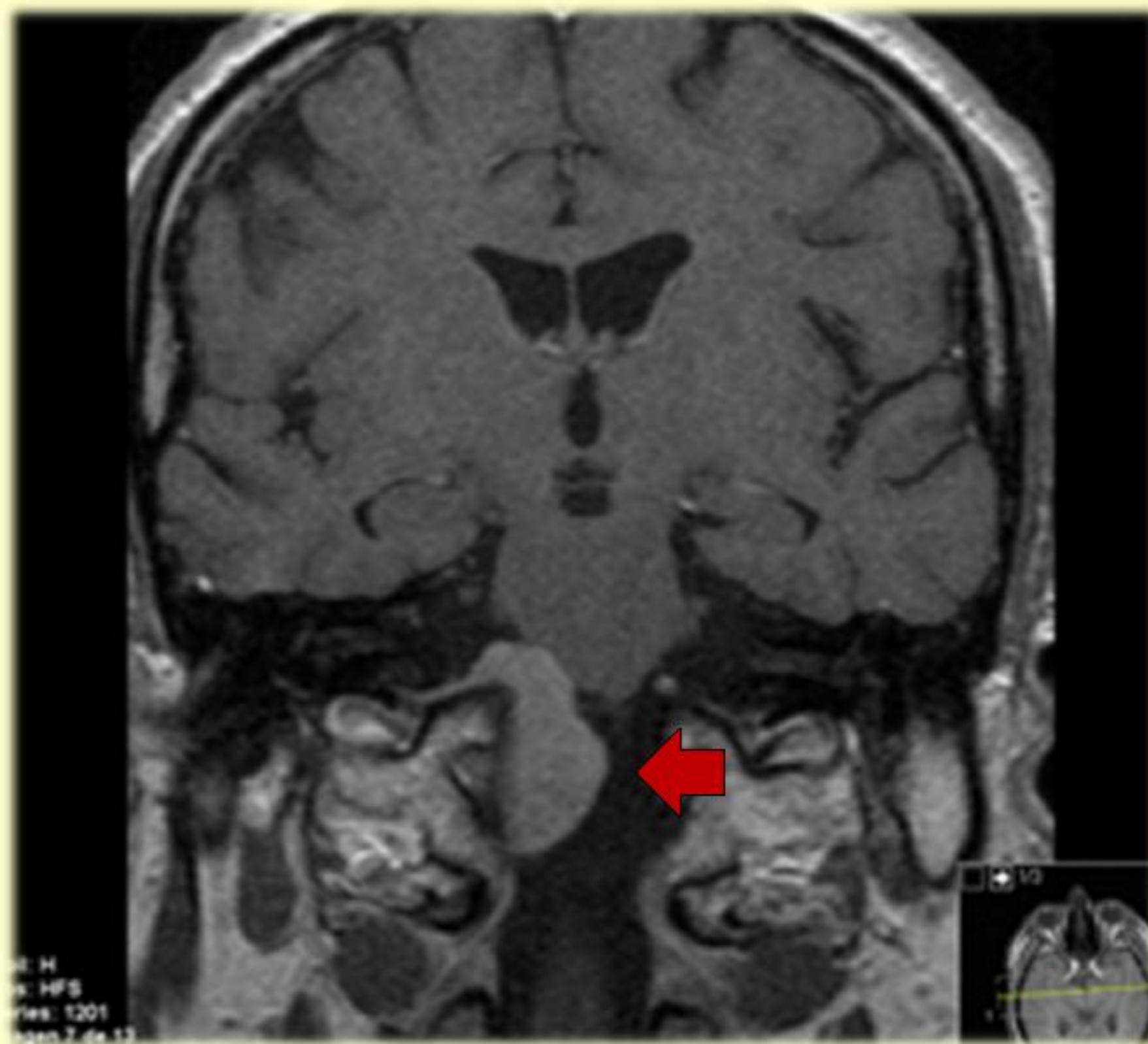
## OBJECTIVES

Second intracranial neoplasms, including meningioma, are the most frequent long-term sequels of pituitary radiotherapy. The cumulative incidence along 20 years from the radiation on is 2% and, unlike its primary forms, they show a more aggressive atypical histology. The age of appearance varies depending on the latency time, which is proportional to the dose of received radiation<sup>1,2</sup>.

## METHODS

We present three patients with meningiomas secondary to pituitary adenoma radiation, all of them of somatomammotroph lineage. All these meningiomas were developed over the area of pituitary irradiation, some 20 years after it, and they were neither present on the diagnose nor was there an environmental or genetic proneoplastic condition.

Case 1.



Case 2.



Case 3.



## RESULTS

**Case 1.** 65 year-old man, diagnosed with macroprolactinoma on 1977. He received cobalt therapy after a subtotal resection of the tumour. He debuted 29 years later with fronto-orbital cephalgia in relation with a prebulbar meningioma with extension to the foramen magnum.

**Case 2.** A 72-year-old male diagnosed with growth-hormone releasing macroadenoma in 1968. He was treated with cobalt-therapy and 44 years later presented with apathy and bradypsychia. Neuroimaging revealed the presence of a right frontal convexity meningioma.

**Case 3.** A 50 year-old man, diagnosed with a macroprolactinoma on 1973 and treated with radiotherapy. After 40 years of treatment, a 11 mm meningioma is discovered on the right sylvian fissure following a study of dementia due to memory loss, mental dispersion and depressed mood.

40-50 Gy was the total dose of radiation received on each patient.

	CASE 1	CASE 2	CASE 3
AGE (Yr)	65	72	50
PITUITARY TUMOUR	Macroprolactinoma	Somatotropinoma	Macroprolactinoma
DIAGNOSIS DATE	1977	1968	1973
TREATMENT	Surgery + Cobalt therapy	Cobalt Therapy	Cabergoline Pterional craniotomy Cobalt therapy
SEQUELS	- Neurosensorial deafness - Panhypopituitarism - Meningioma	- Neurosensorial deafness - Panhypopituitarism - Meningioma - Brain atrophy	- Deafness - Panhypopituitarism - Tooth decay - Brain desmyelinising injuries - Brain Atrophy
MENINGIOMA DIAGNOSIS DATE	2006	2012	2013
ELAPSE	29 years	44 years	40 years
CLINICAL PRESENTATION	Fronto-orbital headache	Apathy Bradypsychia	Memory loss, cognitive impairment
SIZE	11 mm	52 mm	11 mm
LOCALISATION	Prebulbar, extended to foramen magnum	Extraaxial, right frontal	Extraaxial in right sylvian region

## CONCLUSIONS

Second cerebral neoplasms may appear more than 30 years after the pituitary radiotherapy and its detection advises permanent monitoring in neuroendocrinology consultations by means of periodic neuroimaging studies.

## References

- Zhou Q1, Chang H, Gao Y, Cui L. Tumor-to-tumor metastasis from pituitary carcinoma to radiation-induced meningioma. *Neuropathology*. 2013 Apr;33(2):209-12.
- Santoro A1, Minniti G, Paolini S, Passacantilli E, Missori P, Frati A, Cantore GP. Atypical tentorial meningioma 30 years after radiotherapy for a pituitary adenoma. *Neurol Sci*. 2002 Mar;22(6):463-7.

