

# Pituitary metastases

## Learning points

Although rare, metastatic involvement of the [pituitary gland](#) has been reported with increasing frequency during the last decades. Pituitary metastases can be the initial presentation of an otherwise unknown [malignancy](#) and should be considered in the [differential diagnosis](#) of [pituitary lesions](#), irrespective of a history of malignancy. The sudden onset and rapid progression of visual or endocrine dysfunction from a [pituitary lesion](#) should strongly raise the suspicion of metastatic disease. [MRI](#) features of pituitary metastases can overlap with those of other pituitary lesions, including [hypophysitis](#); however, rapid pituitary growth is highly suggestive of metastatic disease. Survival after pituitary metastases detection has improved over time, encouraging individualized interventions directed to metastases to improve [quality of life](#) and increase [survival](#) <sup>1)</sup>.

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Pituitary [metastases](#) (PM) is a rare complication of advanced malignancy, first reported by L. Benjamin in [1857](#) as a case of [melanoma](#) spread to the pituitary identified in an [autopsy](#) <sup>2)</sup> and later in [1913](#), [Cushing](#) <sup>3)</sup> reported this unique phenomenon as the cause of [diabetes insipidus](#).

## Epidemiology

[Pituitary metastases epidemiology](#).

## Classification

see [Breast cancer pituitary metastases](#).

see [Lung cancer pituitary metastases](#).

see [Renal cell carcinoma pituitary metastases](#).

## Pathology

The most common primary malignancies to be found in the pituitary are breast cancer in women and lung cancer in men, presumably merely due to a large number of cerebral metastases from these two cancers . Many other primary tumours have also been described.

It is interesting to note that the posterior lobe and the infundibulum of the pituitary gland are more frequently involved than the anterior lobe (although this may not be the case in breast cancer). Presumably due to the fact that the anterior pituitary receives its blood via the portal circulation rather than directly from the hypophyseal arteries.

## Clinical features

[Pituitary metastases clinical features.](#)

## Diagnosis

[Pituitary metastases diagnosis.](#)

## Differential diagnosis

[Pituitary metastases differential diagnosis.](#)

## Treatment

[Pituitary metastases treatment.](#)

## Outcome

[Pituitary metastases outcome.](#)

## Systematic reviews

A systematic review was performed according to [PRISMA recommendations](#). All cases of MP were included, excepted primary pituitary neoplasms and autopsy reports. Descriptive and survival analyses were then conducted.

The search identified 2143 records, of which 157 were included. A total of 657 cases of MP were reported, including 334 females (50.8%). The mean  $\pm$  standard deviation age was  $59.1 \pm 11.9$  years. Lung cancer was the most frequent primary site (31.0%), followed by breast (26.2%) and kidney cancers (8.1%). Median survival from MP diagnosis was 14 months. Overall survival was significantly different between lung, breast and kidney cancers ( $P < .0001$ ). Survival was impacted by radiotherapy (hazard ratio (HR) 0.49; 95% confidence interval (CI) 0.35-0.67;  $P < .0001$ ) and chemotherapy (HR 0.58; 95% CI 0.36-0.92;  $P = .013$ ) but not by surgery. Stereotactic radiotherapy tended to improve survival over conventional radiotherapy (HR 0.66; 95% CI 0.39-1.12;  $P = .065$ ). Patients from recent studies ( $\geq 2010$ ) had longer survival than others (HR 1.36; 95% CI 1.05-1.76;  $P = .0019$ ).

This [systematic review](#) based on 657 [cases](#) helped to better identify [clinical features](#), oncological characteristics, and the effect of current therapies in patients with MP. [Survival](#) patterns were conditioned upon primary cancer histologies, the use of local [radiotherapy](#) and systemic [chemotherapy](#), but not by surgery <sup>4)</sup>

## Case series

[Pituitary metastases case series.](#)

## Case reports

[Pituitary metastases case reports.](#)

## References

- <sup>1)</sup>  
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- <sup>3)</sup>  
Cushing H. Concerning [diabetes insipidus](#) and the polyuria of the hypophysial origin. Boston Med Surg J. 1913;168(25):901-10.
- <sup>4)</sup>  
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