

## MRI Appearance of a Krukenberg Tumor: About a Case

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### Abstract

This article details the case of Mrs. HH, a 51-year-old with a history of glaucoma, who underwent surgery for an obstructive issue in her ascending colon, resulting in right hemicolectomy. Pathological analysis confirmed a well-differentiated adenocarcinoma with lymphatic involvement but no tumor in the resected colon and lymph nodes. The tumor was classified as pT3 L1 V0 Pn0 N0 (AJCC 8<sup>th</sup> edition).

Six months later, an abdominal-pelvic ultrasound revealed two uterine masses with distinct components. A subsequent pelvic MRI further characterized these masses, showing fleshy, cystic, and hemorrhagic components, along with tubular dilation and pelvic effusion.

The text also discusses Krukenberg tumors, rare ovarian metastases, often originating from digestive cancers. This specific case was reported at the National Institute of Oncology in Rabat, Morocco.

In summary, the text presents a case of Krukenberg tumor secondary to digestive cancer in a patient who previously underwent colon surgery. Imaging revealed unique features of these ovarian metastases.

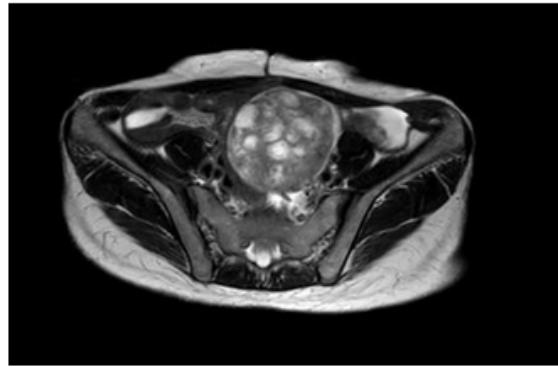
**Keywords:** *Krukenberg Tumor; Digestive Neoplasia; Pelvic MRI*

### Observation

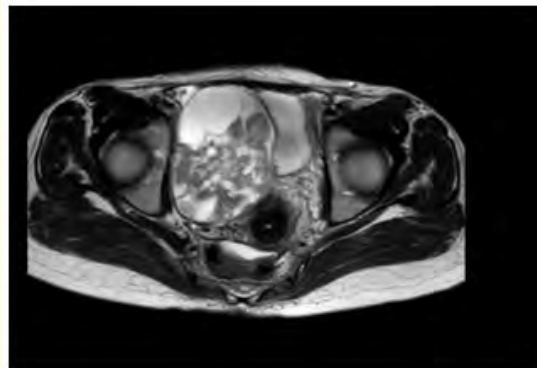
Mrs. HH, aged 51, with a history of glaucoma under treatment. The patient underwent surgery for an occlusive syndrome secondary to stenotic thickening of the ascending colon and underwent right hemicolectomy with lymph node dissection and latero-lateral transverse ileum-colon anastomosis. The anatomico-pathological study of the surgical specimen came back in favor of a well-differentiated adenocarcinoma infiltrating the colonic wall down to the sub serosa, associated with the presence of lymphatic embolism and per-nervous entrainment with limited of small bowel and colonic resection passed in healthy zone and lymph node dissection finds 27 lymph nodes of reactive nature and free from tumor infiltration (noted at 27N0/27N). This tumor was classified p T3 L1 V0 Pn1 N0 (AJCC 8<sup>th</sup> edition).

A follow-up abdominal-pelvic ultrasound was requested 6 months later, showing the presence of two rounded bilateral latero uterine masses, with regular, well-defined contours, with predominantly isoechoic mixed tissue echo structure containing cystic cells.

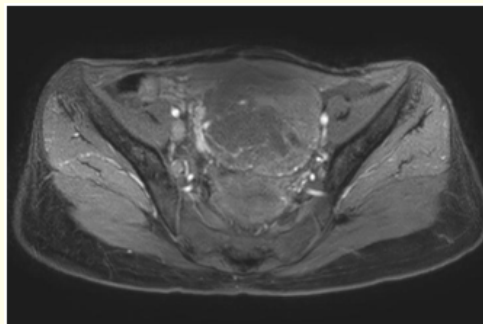
A pelvic MRI was subsequently requested for better characterization, highlighting the presence of two contiguous latero uterine masses, with three components: A fleshy component in intermediate signal at T2 weighting (Figure 1 and 2) restricting the Diffusion to B1000 (Figure 5) with a low ADC (measuring  $0.98 \times 10^{-3} \text{ mm}^2/\text{S}$  at b1500) (Figure 6) and enhanced after gadolinium injection (Figure 3) and type II enhancement kinetics (Figure 4).



*Figure 1: Axial T2-weighted pelvic slice through the left ovarian lesion.*



*Figure 2: Axial T2-weighted pelvic slice passing through the right ovarian lesion.*



*Figure 3: T1 weighting with injection of Gadolinium product.*

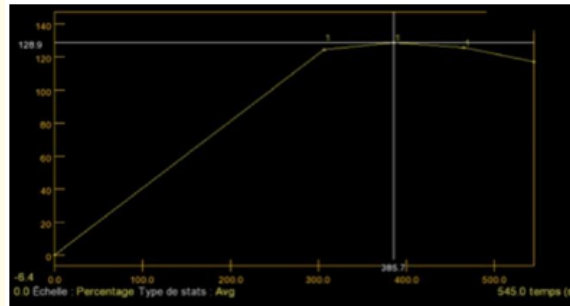


Figure 4: Type 2 curve (plateau enhancement with wash-out less than 10% of the signal intensity percentage).

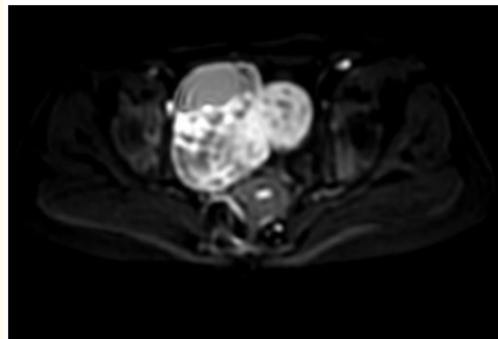


Figure 5: Broadcast weighting at B1000.

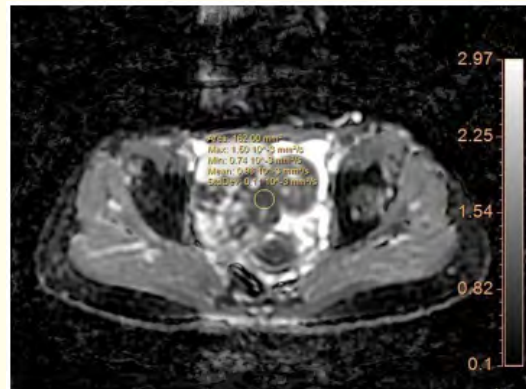


Figure 6: Apparent attenuation coefficient (ADC) measured at  $0.96 \times 10^{-3} \text{ mm}^2/\text{s}$ .

A cystic component in clear hyper signal on the T2 sequence.

A hemorrhagic component in hyper signal on T1 weighting and on the T2 sequence.

It is associated with a tubular dilation in clear hyper signal on T2 weighting in connection with hydro salpinx and a pelvic effusion elsewhere.

### Diagnostic

Krukenberg tumors are a specific entity of ovarian metastases. The primitive is in 90% of cases of digestive origin. They are very rare with a still poorly elucidated etiopathogenesis [1]. We report a case of Krukenberg tumors listed in the Radiology Department of the National Institute of Oncology (INO) of the University Hospital Center (CHU) Ibn Sina in Rabat.

This case of Krukenberg's tumor secondary to digestive neoplasia was reported in a patient who was monitored at the National Institute of Oncology (INO) of the Ibn Sina University Hospital Center in Rabat and diagnosed in the Radiology Department of the same institute. This pathology was described more than a century ago, in 1895 by Friedrich Krukenberg and several reviews have been published on the subject.

### Comments

Krukenberg's tumor is very rare and presents only 1 to 2% of ovarian tumors. It is defined by unilateral or bilateral ovarian metastases of a glandular epithelium, characterized by the presence of mucus-secreting "kitten ring" cells at the ovarian level [1]. Described for the first time in 1895, it still raises questions; the main one is the mode of neoplastic dissemination that may exist between the primary cancer and the ovarian metastasis. The spread is certainly early in many cases. Primary cancers, particularly those of the stomach, are indeed very small, whereas the ovarian tumor is already large [2]. This tumor affects women during the period of genital activity. The average age reported in the literature is 40 years [3]. Krukenberg's tumors are crude and the specific signs are poor so that they can be discovered intraoperatively or even be a surprise on anatomo-pathological examination [3]. Ultrasound and CT show the bulky size of these tumours. Bilateral tumors are predominant [3]. Imaging shows masses at the expense of the ovary, solido-cystic multi-lobular with signs of malignancy (loco regional extension, peritoneal nodules) but in no way allows the primary ovarian tumor to be differentiated from a tumor secondary. It remains essential in the extension assessment [5]. Microscopically, Krukenberg's tumor is characterized by the presence of "kitten ring" epitheliomatous cells with an eccentric nucleus filled with mucin-carminophilic mucus, isolated or grouped in clusters within fibrils and by a pseudo-sarcomatous proliferation of the stroma [6].

### Bibliography

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