CLINICAL IMAGE

Spontaneous regression of metastatic renal cell carcinoma after cytoreductive nephrectomy followed by relapse at 3 years

Mateusz Malik[1*], Maciej Michalak[2,3*], Dawid Sigorski[3,4], Lubomir Bodnar[5,6], Tomasz Lewandowski[4,7], Sergiusz Nawrocki[3,8]

1 Clinical Oncology Department, Lower Silesian Oncology, Pulmonology and Hematology Center, Wrocław, Poland
2 Diagnostic Imaging Department, Clinical Hospital of the Ministry of Internal Affairs and Administration with the Warmia-Mazury Oncology Centre, Olsztyn, Poland
3 Department of Oncology, Collegium Medicum, University of Warmia and Mazury in Olsztyn, Olsztyn, Poland
4 Department of Oncology and Immuno-Oncology, Clinical Hospital of the Ministry of Internal Affairs and Administration with the Warmia-Mazury Oncology Centre, Olsztyn, Poland
5 Department of Clinical Oncology and Radiotherapy, St. John Paul II Mazovia Regional Hospital, Siedlce, Poland
6 Faculty of Medical and Health Sciences, Siedlce University of Natural Sciences and Humanities, Siedlce, Poland
7 Centre of Postgraduate Medical Education, Warsaw, Poland
8 Department of Radiotherapy, Clinical Hospital of the Ministry of Internal Affairs and Administration with the Warmia-Mazury Oncology Centre, Olsztyn, Poland

Over 30% of renal cell carcinoma (RCC) cases are diagnosed at the metastatic stage of the disease. Systemic treatment (immunotherapy and/or tyrosine kinase inhibitors) is recommended, according to guidelines, with immediate or deferred cytoreductive nephrectomy (CN).[1] In less than 1% of cases spontaneous remission may be observed following CN.[2]

A 61-year-old woman was admitted to a hospital with progressive weight loss and nonproductive cough. Medical history revealed type 2 diabetes, hypertension, and osteoarthritis. The patient denied smoking, although confirmed a positive family history of RCC and colon cancer in her mother. A computed tomography (CT) scan of the chest and upper abdomen revealed lung metastases and a tumor in the left kidney (FIGURE 1A). Following abdominal and pelvic CT imaging 1 month apart, prior to planned surgical treatment, several solid lung lesions, the largest of which was 21 mm in size (FIGURE 1B), and regional metastatic lymph nodes up to 10 mm in the short axis were confirmed.

Radical transperitoneal immediate CN was performed in April 2018 with resection of the left adrenal gland and para-aortic lymph nodes.

A histopathology report confirmed clear cell RCC with rhabdoid differentiation without involvement of the adrenal gland and lymph nodes. With a final stage of T3a N0 M1, according to the TNM Classification of Malignant Tumors[3], and intermediate prognosis according to the Memorial Sloan Kettering Cancer Center criteria[4], the patient was consulted by a multidisciplinary team (MDT) and initially qualified for a first-line systemic therapy with a tyrosine kinase inhibitor pazopanib.

One month after the CN, follow-up CT was performed as a systemic treatment baseline examination, which revealed complete radiographic remission of the tumorous lesions in the lungs (FIGURE 1C). Due to unusual course of the disease, all CT images were consulted by an independent radiologist, who confirmed the neoplastic nature of the previously detectable vascularized lung tumors and the right upper paratracheal

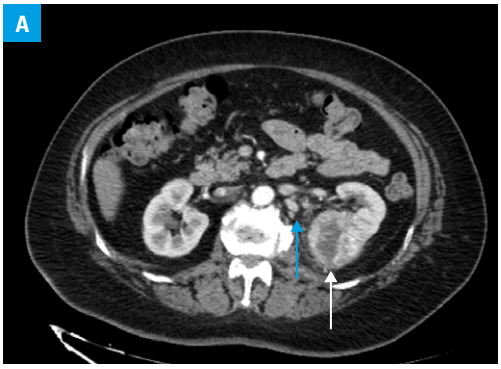

FIGURE 1 **A** – an axial computed tomography (CT) scan with intravenous contrast administration revealing hypervascular renal tumor (white arrow) and pathologic retroperitoneal lymph nodes (blue arrow)

Correspondence to:
Mateusz Malik, MD, Clinical Oncology Department, Lower Silesian Oncology, Pulmonology and Hematology Center, Ludwik Hirszfeld Square 12, 53-413, Wrocław, Poland, phone: +48 71 368 93 61, email: mateusz.malik@dcopih.pl
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* MMalik and MMichalak contributed equally to this work.

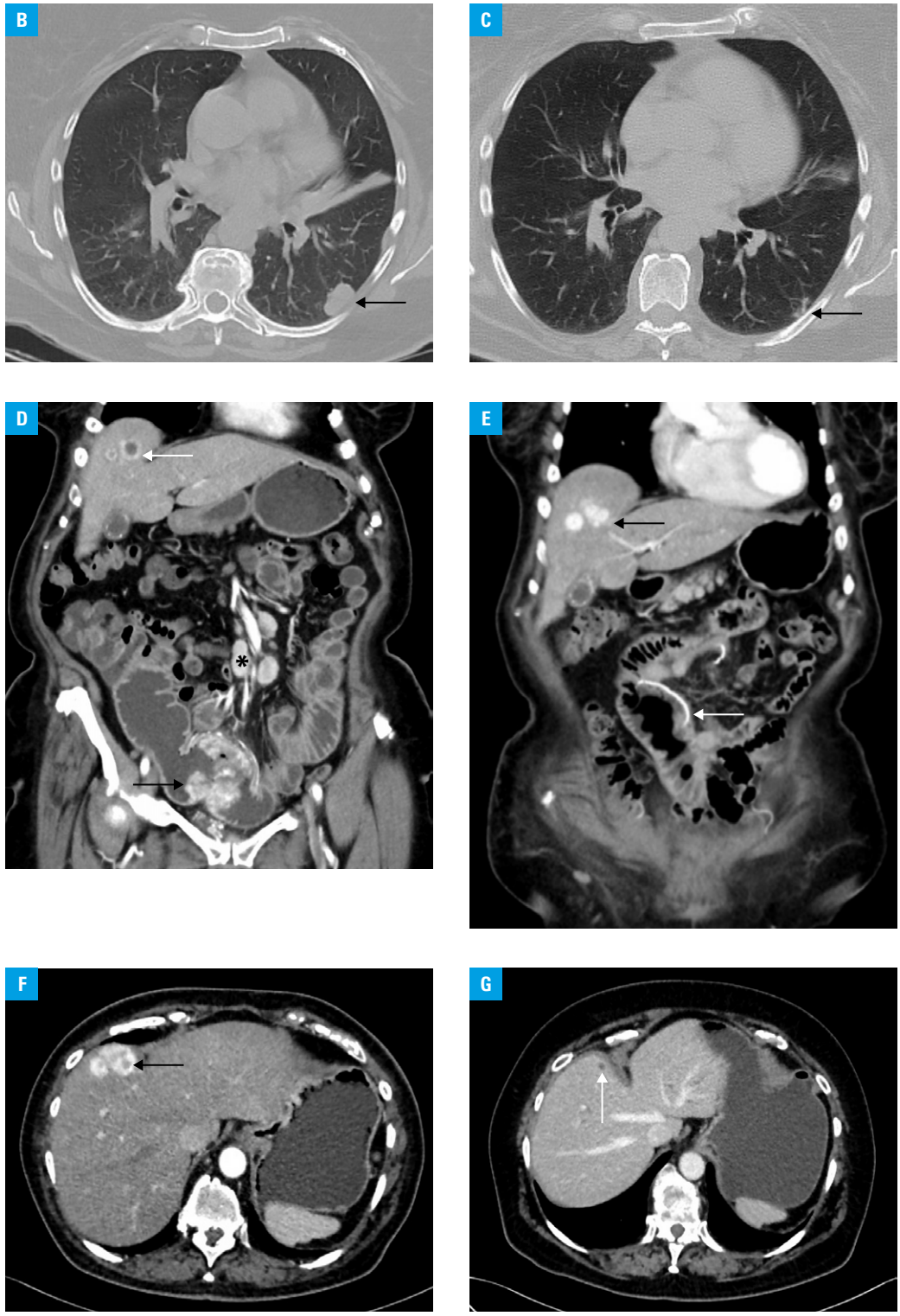

FIGURE 1 **B** – an axial CT scan with lung window settings showing subpleural metastatic lesion (arrow); **C** – an axial CT scan with lung window settings; arrow indicates spontaneous tumor regression with subpleural scar formation. **D** – a coronal CT scan with intravenous contrast administration revealing a hypervascular mass protruding into the lumen of the small intestine (black arrow), liver metastases (white arrow), and pathologic mesenteric lymph nodes (black star); **E** – a follow-up CT scan after surgery with white arrow showing surgical sutures in enteroenteric anastomosis, and black arrow indicating slight enlargement of tumors in the liver; **F** – a baseline axial CT scan prior to administration of pazopanib, with arrow showing a solid, hypervascular metastatic lesion in the liver; **G** – a follow-up axial CT scan performed 28 months after pazopanib treatment was commenced, with arrow pointing to a small hypovascular residual liver nodule

All diagnostic images are provided by the Diagnostic Imaging Department, Clinical Hospital of the Ministry of Internal Affairs and Administration with the Warmia-Mazury Oncology Centre, Olsztyn, Poland.

lymph node on both CT scans. This led to a suggestion of spontaneous remission. Consequently, the MDT offered active surveillance, having obtained the patient's informed consent. Subsequent CT scans every 3 to 4 months showed ongoing complete remission. The patient's condition was stable during follow-up.

In June 2021, that is, 37 months after spontaneous remission, the patient was admitted to a hospital with symptoms of bowel obstruction. Urgent CT revealed metastases in the small intestine, mesenteric lymph nodes, and liver (**FIGURE 1D**), without any new lung lesions. As a result of surgical treatment, the patient's condition improved (**FIGURE 1E**). Due to tumor recurrence, the patient began systemic treatment with pazopanib (800 mg orally per day), still ongoing in February 2024, achieving a durable partial response (**FIGURE 1F** and **1G**).

A symptomatic and progressive metastatic disease with a probable primary site in the kidney poses a diagnostic and therapeutic challenge. The role of radical or partial CN in the treatment of metastatic RCC is widely debated. Observations from the International Metastatic Renal Cell Carcinoma Database Consortium indicate a beneficial effect of CN on the prognosis of patients with RCC.[5] High immunogenicity of RCC as a result of a complex tumor microenvironment was the basis for a therapy with high-dose interleukin-2 and interferon α in the past, and is now crucial in immunotherapy with checkpoint inhibitors. The phenomenon of spontaneous remission is considered one of the manifestations of this immunogenicity.[6] This case may indicate a beneficial effect of CN on the disseminated disease. However, patients who achieve spontaneous complete remission should be closely monitored for recurrence.

ARTICLE INFORMATION

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