

histological examinations. The patient died due to severe respiratory failure, due to lung metastases, on 23rd of February 2014. *Discussion:* Angiosarcomas are a very rare group of malignant tumors with poor prognosis. A patient may either be asymptomatic or suffer from weight loss, anorexia and chronic pain, as in our patient. No hormonal activity is found and there are not radiologic pathognomonic findings (1). Thus far, the diagnosis is supported by histopathology and immunohistochemistry, even if it is very difficult for extensive cystic changes with necrosis that make it difficult to identify a focus of primary adrenal angiosarcoma. Moreover, angiosarcoma is typically identified by a vasoformative pattern on histologic sections. However, most primary angiosarcomas are of epithelioid type, as in our patient, with a solid epithelioid pattern rather than a vasoformative pattern. Therefore, immunohistochemical reactivity for epithelial markers may be useful but cytokeratin reactivity may occur also in non-epithelial tumors like sarcoma. Thus, when confronted with an epithelial adrenal tumor, pathologists are advised to include an endothelial marker in the spectrum of antibodies (2). Surgery is the only possible curative treatment known so far. If the tumor is confined to the adrenal gland, it is suggested not only removing it but also taking out the periadrenal fat tissue and pericaval and periaortic tissue. In the metastatic disease, cytotoxic chemotherapy is the treatment of choice with anthracyclines, ifosfamide and taxanes. Their dose-limiting toxicity does not allow to prolong these therapies for more than 6-7 months and, for these reasons, gemcitabine seems very promising. Also, in advanced disease, the sequential use of taxanes and gemcitabine could be more advisable than their combination (3). *Conclusion:* Adrenal angiosarcoma is a very rare and aggressive tumor with a 5-year survival not exceeding 30%. Thus, early diagnosis is mandatory but is very difficult because clinical symptoms are non-specific, endocrinological studies are not indicative and radiology workup may suggest only an indistinct malignancy. A definitive diagnosis is still based on histomorphological and immunohistochemical studies that are difficult and time-consuming procedures. Sometimes, diagnosis is often achieved when there is an advanced disease, with no therapeutic options, as in our patient.

- 1 Yip L *et al*: The adrenal mass: Correlation of the histopathology with the mass. *Ann Surg Oncol* 17: 846-852, 2010.
- 2 Kruger S *et al*: Primary epithelioid angiosarcoma of the adrenal gland. Case report and review of the literature. *Tumori* 87: 262-265, 2001.
- 3 Stacchiotti S *et al*: Gemcitabine in advanced angiosarcoma: A retrospective case series analysis from the Italian Rare Cancer Network. *Annals of Oncology* 23: 501-508, 2012.

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UROTHELIAL EGF-R GENE EXPRESSION IN BLADDER WASHINGS: A FEASIBILITY STUDY

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Introduction and Objectives: Epidermal growth factor (EGF) is a strong tumor promoter. Its concentration is reduced in urine of patients affected by bladder cancer supporting the important role of its interaction with the urothelial epidermal growth factor-receptor (EGF-R) in tumor development and progression (1, 2). It would be of great usefulness to evaluate *EGF-R* gene expression during follow-up of non-muscle invasive bladder cancer (NMI-BC) avoiding tissue biopsy. The objective of our research was to investigate the feasibility of *EGF-R* evaluation in bladder washings of patients affected by NMI-BC. *Materials and Methods:* The study included patients undergoing adjuvant intravesical therapy for NMI-BC and age-matched healthy controls. In a preliminary phase of our research, bladder washing was selected for *EGF-R* analysis due to the high variability and easier contamination of urine. Samples of bladder washings were collected before, during and after adjuvant intravesical therapy and during the follow-up to investigate the gene expression of *EGF-R*. After collection, the samples were centrifuged twice at 4°C, 1,200 rpm for 10 minutes, in cold phosphate-buffered saline solution. The cellular pellet was stored at -80°C and later analyzed by isolation of cellular RNA using a miRNeasy Mini Kit (Qiagen®). Reverse transcription-polymerase chain reaction (RT-PCR) was performed in order to analyze *EGF-R* gene expression. Changes in the *EGF-R* content were calculated using the $\Delta\Delta C_t$ method after normalization with endogenous reference and calibrating cycle threshold (Ct) value for each RNA obtained for triplicate reactions. The percentage of patients with bladder washings giving a useful pellet for *EGF-R* determination was considered for the feasibility. *EGF-R* gene expression was related to tumor characteristics and compared to healthy controls. Descriptive statistical analysis was performed. *Results:* Thirty-two patients and 13 healthy controls were entered in the study. Fifty-two samples were obtained. A useful pellet to evaluate *EGF-R* expression was obtained in 26 patients (81.2%), 22 males and 4 females, mean age 71 (range=52-83) and in 10 healthy controls (76.9%). The bladder tumors were Ta, T1 and Tis, respectively in 8, 16 and 2 patients; single in 7 and multiple in 17, primary in 11 and recurrent in 16 patients. In 6

patients, a synchronous Tis was diagnosed. The median *EGF-R* expression resulted 2.4-fold compared to controls (*EGF-R*=1). Four patients (15%) presented elevated levels of *EGF-R* after transurethral resection (TUR) and before adjuvant therapy with a median value of 4-fold. *EGF-R* expression increased during follow-up in 9 patients (34%) with a median of 4-fold (range=2.5-8); returning within limits in 3 of them after adjuvant therapy. *Discussion:* *EGF-R* is detected in the basal layer of normal urothelium. Its expression in NMI-BC is limited and increases in high grade and invasive tumors. *EGF-R* activation promotes tumor growth by blocking apoptosis and increasing cell proliferation, motility, adhesion and invasive capacity. The results obtained in NMI-BC on *EGF-R* as an independent predictor of progression are scarce and conflicting (1). Only few data have been obtained in NMIBC (2). Our study suggests the feasibility of *EGF-R* evaluation in bladder washings of patients affected by NMI-BC avoiding tissue biopsies. It was technically possible to evaluate its expression after TUR in more than 80% of our patients resulting up-regulated in 15% of them. *EGF-R* up-regulation might represent a marker of potential aggressiveness of the tumor, failure of the treatment and progression during follow-up.

- 1 Benjamin A *et al.* The Role of EGFR Family Inhibitors in Muscle Invasive Bladder Cancer: A Review of Clinical Data and Molecular Evidence. *J Urol* 193: 1929, 2015.
- 2 Røtterud R *et al.* Expression of the epidermal growth factor receptor family in normal and malignant urothelium. *BJU Int* 95: 1344, 2005.

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A SURGICAL TEMPLATE IN SALVAGE LYMPHADENECTOMY FOR PROSTATE CANCER NODAL RECURRENCE: DOES PELVIC INVOLVEMENT PREDICT RETROPERITONEAL POSITIVITY?

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PREDICTION OF RETROPERITONEAL NODAL INVOLVEMENT			
	Negative retroperitoneal nodes (n=16)	Positive retroperitoneal nodes (n=10)	OR
PELVIC REGION (A+B)			
Negative pelvic nodes (n=6)	83.3% (n=5)	16.7% (n=1)	4.09 (0.40-41.6), p=0.2
Positive pelvic nodes (n=20)	55.0% (n=11)	45.0% (n=9)	
EXTERNAL, INTERNAL AND OBTURATORY REGION (A)			
Negative external, internal iliac and obturatory nodes (n=11)	72.7% (n=8)	27.3% (n=3)	2.33 (0.43-12.3), p=0.3
Positive external, internal iliac and obturatory nodes (n=15)	53.3% (n=8)	46.7% (n=7)	
COMMON ILIAC AND PRESACRAL REGION (B)			
Negative common iliac and presacral nodes (n=11)	72.7% (n=8)	27.3% (n=3)	2.33 (0.43-12.3), p=0.3
Positive common iliac and presacral nodes (n=15)	53.3% (n=8)	46.7% (n=7)	
PREDICTION OF COMMON ILIAC AND PRESACRAL NODAL INVOLVEMENT			
	Negative common iliac and presacral nodes (n=11)	Positive common iliac and presacral nodes (n=15)	
Negative external, internal iliac and obturatory nodes (n= 11)	54.5% (n=6)	45.5% (n=5)	2.40 (0.48-11.8), p=0.2
Positive external, internal iliac and obturatory nodes (n=15)	33.3% (n=5)	66.7 (n=10)	

Table I. (Abstract 103).