CASE REPORT

An 84-year-old gentleman was referred to the Urology Department at Bedford Hospital with a computed tomography (CT) scan revealing multiple polypoidal lesions in the urinary bladder (Fig. 1) and bilateral pulmonary metastases. The patient initially presented to the dermatology department in May 2010 with a suspicious, raised nodular lesion on the skin of his upper back. He underwent an urgent wide local excision of the lesion in June 2010. The histopathology report revealed an ulcerated nodular malignant melanoma with a Breslow thickness of 9.6 mm and Clark level 4 with no lymphovascular or perineural invasion. The lesion was completely excised with the nearest peripheral margin at 1.5 mm and the deep resection margin at 10.5 mm. Careful surveillance was advocated and routine reviews with CT scans did not reveal any local recurrence or metastatic disease three and nine months postoperatively.

Fourteen months following diagnosis the patient developed rectal bleeding and underwent urgent colonoscopy that revealed extrinsic compression of the colon and splenic flexure. A subsequent CT scan of the chest, abdomen, and pelvis noted metastatic disease in the lungs. In the urinary bladder, a large diverticulum and multiple polypoidal lesions were identified, which initiated the urology referral.

During a flexible cystoscopy performed in September 2011, multiple pigmented lesions were identified within the bladder (Figs. 2 and 3). Urine cytology revealed a number of scattered single cells containing pigment, positive for S100 and HMB45, and negative for Perl’s stain for iron (Figs. 4 and 5). A diagnosis of stage IV metastatic malignant melanoma with bladder involvement was made. Due to the general poor condition of the patient, the multidisciplinary team consensus was against active treatment. The patient deteriorated rapidly and died due to respiratory compromise.

DISCUSSION

Malignant melanoma is the fifth most common cancer diagnosis in men and the seventh in women [1]. Importantly its
Prevalence is increasing more rapidly than any of the other solid tumors with a five-fold increase in incidence in men over the last thirty years and three-fold increase in women[2]. Patients with stage IV disease have a poor median survival of 6-10 months with less than 5% surviving more than five years[3, 4]. Patients over the age of 65 are more likely to present with late stage disease than younger patients: 20% vs. 7%[2]. Metastases to organs other than the skin or lungs are associated with an even poorer prognosis[4].

Ninety-five percent of bladder tumors are primary urothelial tumors, while other primary tumor types include adenocarcinomas, squamous cell tumors, and small cell tumors[5]. Two percent of bladder tumors are metastases from other primary tumors[6]; the majority of these represent direct spread from adjacent organs. When considering distant metastasis the most common primary tumors are melanomas, gastric tumors, and breast tumors[7], usually in the context of an advanced and widespread disease[8].

The clinically evident metastatic melanoma in the bladder is rarely described and most commonly presents as painless, macroscopic hematuria (Table 1). A subsequent diagnosis is made based on the cystoscopic findings and histopathological features combined with a clinical history of previous melanoma; though melanoma cells may have been evident on urine cytology[9]. The location of the primary lesion is also highly variable with no site predominating. Equally the lesion may present soon after the diagnosis or over 20 years later. However, despite occasionally being the first presentation of stage IV disease, they most commonly occur in the context of widespread metastatic spread and have a correspondingly poor prognosis[8].

Management of malignant melanoma metastases into urinary bladder consists of conservative management that involves local and systemic therapy (Table 1). Endoscopic resection of metastatic deposits might be considered for symptoms palliation, while partial or complete cystectomy should be reserved for patients with longer life expectancy. The overall risk of complications of minimally invasive transurethral surgery is 5.1% with hematuria and bladder perforation incidence of 2.8% and 1.3%, respectively[10]. Treatments with systemic chemotherapy were reported as an adjunct to endoresection; however, this should be limited to patients with better performance status.

### Table 1. Cases of Malignant Melanoma metastases to the urinary bladder previously reported in English literature

| Author                  | Journal         | Year  | Presenting Symptom      | Synchronous Mets         | Treatment               |
|-------------------------|-----------------|-------|-------------------------|--------------------------|-------------------------|
| Amar et al.             | J Urol          | 1964  | Haematuria              | Maxillary lesion         | Partial Cystectomy      |
| Bartone et al.          | J Urol          | 1964  | Haematuria              | Lymph nodes + Brain      | Partial Cystectomy      |
| Weston et al.           | BJN             | 1964  | Urinary retention       | Widespread               | None                    |
| Dasgupta et al.         | J Urol          | 1965  | Haematuria              | Axillary lesion Inguinal nodes | Fulguration /Segmental resection |
| Silverstein et al.      | JAMA            | 1974  | Haematuria              | Absent                   | BCG                     |
| Meyer et al.            | Cancer          | 1974  | Asymptomatic/ Haematuria | Widespread Lung          | Chemotherapy / Surgery / TURBT |
| Tolley et al.           | BJ Clin Prac    | 1975  | Haematuria              | Absent                   | Radical Cystectomy      |
| Chin et al.             | J Urol          | 1982  | Haematuria              | Bowel                    | Partial Cystectomy      |
| Stein et al.            | J Urol          | 1984  | Haematuria              | Absent                   | TURBT + Chemotherapy    |
| Arapantoni-Dadioti et al.| Eur J Surg Oncol | 1995  | Dysuria                 | Widespread               | Chemotherapy             |
| Ergen et al.            | Int Urol & Neph | 1995  | Haematuria + flank pain | Bowel                    | None                    |
| Demirkesen et al.       | Urol Inter      | 2000  | haematuria + LUTS       | Widespread               | Chemotherapy             |
| Martinez-Giron et al.   | Cytopathology   | 2008  | Haematuria              | Unknown                  | Unknown                  |
| Nair et al.             | J Clin Urol     | 2011  | Haematuria              | Widespread               | Chemotherapy             |

**Fig. 4.** Urine cyto 63X – Malignant melanoma cells with high N:C ratio and cytoplasmic melanin pigment on PAP stained preparation.

**Fig. 5.** HMB-45 positive melanoma cells (large slide) and IHC-S100 positive melanoma cells (bottom right corner).
CONCLUSIONS

Malignant melanoma is an increasingly common [2] and aggressive cancer with high metastatic tendency. Metastases to the urinary bladder are often asymptomatic hence are probably underreported as autopsy series reveal bladder involvement in 18% of the patients with extra-regional disease [11]. Clinically evident metastases usually present with hematuria and indicate an advanced disease.

An increase in the number of diagnoses is imperative due to widespread access to high quality pelvic imaging and will likely result in therapeutic debate. Treatment modalities including conservative management, transurethral surgery, systemic chemotherapy, and partial or complete cystectomy have been described (Table 1); however, the evidence is anecdotal. Therefore, management should be tailored to the patient’s condition, symptoms, and number and size of metastases, as well as the need for considering a poor prognosis of stage IV disease.

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