Q: Non-urothelial bladder malignancies

Case 1

1. An 80-year-old gentleman presented with a history of visible haematuria and recurrent urinary tract infections (UTIs). He has been performing intermittent self catheterisation (ISC) for detrusor underactivity for over 20 years. A flexible cystoscopy showed these appearances of the bladder mucosa (Figure 1).

1. What is the most likely diagnosis?
2. What are the subtypes of this cancer?
3. What are the risk factors associated with this cancer?
4. What is the most effective treatment against this cancer?

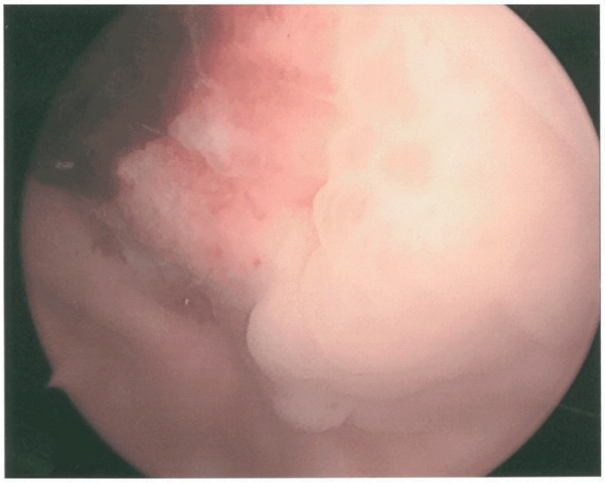

Figure 1.

Case 2

A 70-year-old gentleman presented with visible haematuria. He has a past medical history of surgery for an anal fistula. Flexible cystoscopy revealed a 5cm invasive lesion at the dome of bladder (Figure 2). The histopathological analysis is demonstrated in Figure 3.

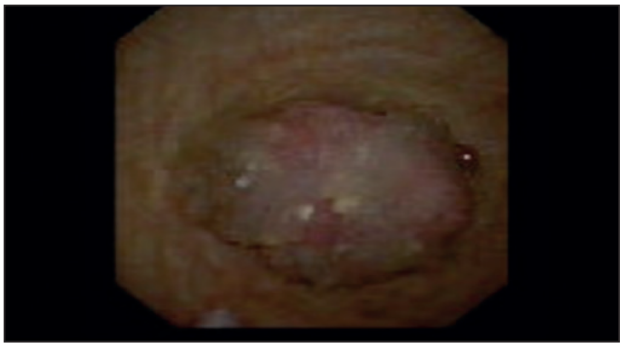

Figure 2.

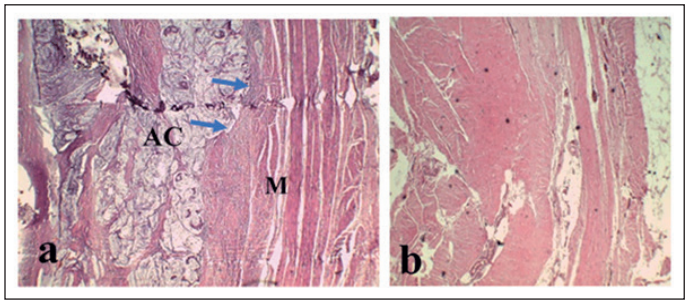

Figure 3.

1. What is the likely diagnosis and what are the risk factors?
2. What are the different types of this diagnosis?
3. What are the treatment options?

Case 3

An 80-year-old gentleman, with a smoking history, presented with lower urinary tract symptoms and visible haematuria. An ultrasound scan of renal tract and flexible cystoscopy showed 5cm bladder wall thickening very suspicious for bladder cancer. The patient subsequently underwent transurethral resection of bladder tumour (TURBT) and histology revealed a non-urothelial cell carcinoma pathology. The patient presented a few months later with vertebral metastasis and passed away.

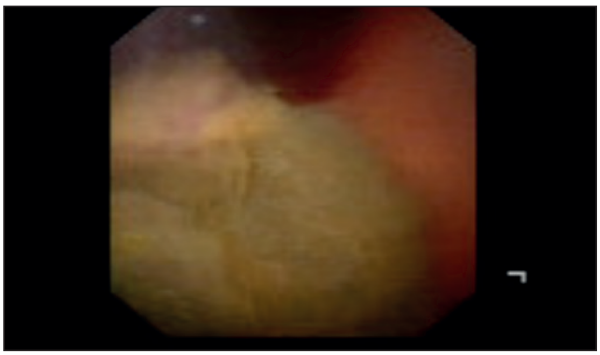

Figure 4.

1. What is the most likely diagnosis?
2. What are the presenting features of this pathology?
3. What are the treatment options?

Acknowledgements

Figure 1 reproduced (with permissions) from: Keller A, Shepherd B, Mulyadi A, Ali A. Case Report: Primary squamous cell carcinoma of the bladder secondary to chronic renal fungal ball and recurrent polymicrobial urinary tract infections. *F1000Res* 2015;**4**:84.

Figure 3 reproduced (with permissions) from: Tejeda-Mariaca JE, Ordonez-Alcantara M, Bello-Sedano A, Perez-Cornejo V, Grandez-Urbina JA. Case Report: Bladder adenocarcinoma: primary or urachal? *F1000Res* 2019;**8**:1717.

A: Non-urothelial bladder malignancies

Case 1

1. The likely diagnosis is squamous cell carcinoma (SCC) of the bladder. SCC of the bladder is a rare urologic malignancy, with an estimated incidence of 3–5% of bladder cancers [1]. It accounts for up to 75% of bladder cancer in regions endemic for Schistosoma haematobium [2].
2. The disease is subclassified into bilharzial and non-bilharzial types. The tumours are usually well differentiated with a low incidence of lymph node or distant metastasis in schistosomiasis-associated SCC. The tumours tend to be poorly differentiated and advanced at diagnosis in the non-schistosomiasis subtype so these patients tend to have a poorer prognosis.
3. Risk factors include any insult leading to chronic inflammation or trauma including a history of spinal cord injury with resultant neurogenic bladder and catheter dependence, recurrent urinary tract infections, bladder calculi, tobacco use, or prior therapies including pelvic radiation, intravesical Bacillus Calmette-Guerin (BCG), cyclophosphamide and schistosomal infection [3].
4. Although the available data is limited and largely retrospective in nature, cystectomy with pelvic lymph node dissection is the definitive treatment of choice in muscle invasive SCC of the bladder and there is data to suggest that bladder-preserving chemoradiotherapy (CRT) is inferior [1].

Case 2

1. Adenocarcinoma of the bladder is rare and accounts for 0.5–2.0% of all malignant bladder tumours [4]. Figure 3 demonstrates: a) primary adenocarcinoma (AC) and infiltrated muscle layer (M) (blue arrows) and b) tumour free urachus. Risk factors include bowel augmentation / bladder substitution into the urinary tract, schistosomiasis, chronic inflammation, exstrophy and can be associated with patent urachal remnant [5].
2. Types of bladder adenocarcinoma include primary bladder or secondary (metastasis from colonic tumour). Primary bladder subtype includes both non-urachal and urachal subtypes. Primary bladder adenocarcinoma is usually at the dome / base and can occur in response to chronic inflammation. These tumours can be mucin producing and poorly differentiated. Signet ring adenocarcinomas may be associated with bladder exstrophy.
3. Due to the rarity of this type of bladder malignancy, there is little evidence for its management. The treatment for localised disease is with radical cystectomy and lymph node dissection in primary adenocarcinoma (non-urachal). In contrast, urachal tumours can be managed with excision of the urachus (partial cystectomy) and wide excision of the umbilicus with negative margins [1]. Patients with positive margins or metastasis can be managed with chemoradiation.

Case 3

1. Given the presentation the likely diagnosis is small cell carcinoma of bladder. Small cell carcinoma accounts for approximately 1% of primary bladder malignancy in the UK [1]. This is a rare, aggressive, poorly differentiated neuroendocrine tumour. Neuroendocrine tumours are generally classified into carcinoid tumours and neuroendocrine carcinoma, which is subclassified into small cell carcinoma and large cell neuroendocrine carcinoma (rare) [1]. Chromogranin is positive in 50% of cases of small cell carcinoma. Histopathological findings include sheets and nests of small to medium-sized cells with hyperchromatic nuclei, inconspicuous nucleoli, and scant cytoplasm with extensive areas of coagulative necrosis. Genuine small cell carcinoma of the bladder is rare and is usually mixed with another histologic subtype (most commonly urothelial carcinoma) [6]. Small cell carcinoma of the bladder has a more aggressive behaviour and carries a worse prognosis as patients present at a later stage [6].
2. The presenting symptoms are those of visible haematuria and dysuria (second most common symptom). Other non-specific symptoms include urinary tract obstruction, abdominal pain, recurrent UTIs and weight loss. Paraneoplastic symptoms have been reported rarely such as hypercalcemia and ectopic ACTH secretion. Immunohistochemistry plays a major role in the diagnosis using neuroendocrine markers.
3. Due to its aggressive behaviour, a multimodal treatment strategy is recommended which may include radical or partial cystectomy, radiation therapy, and neoadjuvant / adjuvant chemotherapy as well as chemotherapy alone.

References

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