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Overview

Palliation of Male Genital Cancers

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Abstract

Advanced genital tumours are rare. Traditionally, surgical intervention in these patients has had a limited role due to the associated co-morbidities, poor performance status and overall poor prognosis. Because the potential benefit of surgical intervention in advanced cases is not evidence based, a large proportion of these patients are treated palliatively with chemoradiation therapy, which may have a limited role in advanced disease together with no significant improvement in quality of life for the patient. We present a review of palliative surgical techniques and non-surgical interventions in a range of male genital malignancies. Although the focus relates to advanced tumours with a palliative intent, a brief discussion on treatment with a view to cure is also covered. The traditional dogma is challenged with demonstration of value in surgery as part of multimodal therapy. Various surgical techniques that are used not only to excise the primary tumour, but also those of reconstruction of the urinary tract as well as techniques of flap and graft-based coverage are described. We show the essential role of surgery as part of multimodal therapy in well-motivated patients. No longer is surgery considered as having a limited role in these patients with advanced male genital malignancy.

Key words: Advanced; cancer; genital; male; palliation

Statement of Search Strategies Used and Sources of Information

PubMed, Medline and Ovid were used as search engines as well as websites of the British Journal of Urology International and the European Association of Urology for relevant articles and guidelines.

Introduction

Male genital malignancies include those involving the penis, scrotum and/or testis. The focus of this review will be on penile and scrotal cancers, most of which are squamous cell carcinomas (>90%). Other genital tumours encountered at an advanced stage include malignant melanoma, transitional cell carcinoma of the distal urethra, sarcomas and rhabdosarcomas, malignant cystic mesothelioma and urethral squamous cell carcinoma.

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Penile Cancer

Penile cancer is rare in Europe and North America, accounting for 0.1–0.9 cases per 100,000 of the population. In the UK, there are about 400 new cases per year, with an annual mortality of 100 patients per year (Cancer Research UK statistics, http://info.cancerresearchuk.org/utilities/atozindex/atoz-penis-cancer). The most important prognostic indicators are the presence of metastatic disease in the regional lymph nodes. Patients may often present with advanced primary tumours (T3/T4), which were traditionally deemed inoperable. The reasons for the late presentation are multiple and include patient embarrassment, failure of early diagnosis and limited access to medical care, particularly in developing countries. Furthermore, patients are often treated primarily with chemoradiation with surgery only considered at a late stage after no response to initial treatment modalities.

Metastatic disease from penile cancer follows a stepwise progression, with skip lesions being a rarity. The main cause of death in penile cancer is metastatic disease, usually to the liver, lungs, bone and brain, which is relatively resistant to current chemotherapy regimens. With such poor prognosis

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of patients presenting with metastatic disease, the role of surgery to treat the primary penile tumour has been questioned.

Indications for Surgery in Advanced Male Genital Cancers

Advanced penile/male genital tumours include those where the primary tumour is stage T4, with at least N3 nodal status or M1 status as classified according to the TNM staging system [1,2]. Approximately 0–14% of patients with penile cancer present at this advanced stage. The role of surgery to treat the primary tumour or inguinal lymph nodes in advanced penile cancer has been questioned, as patients who have previously had the primary tumour or inguinal lymph nodes excised and later present with metastasis respond poorly to chemotherapy and/or radiotherapy, with most patients succumbing to the disease within a year [3]. Extensive penile tumours involving adjacent organs, including the prostate and rectum, are often associated with disseminated disease at presentation. For patients with a short life expectancy, palliative radiotherapy or chemotherapy may be the most appropriate treatment. Some patients may be suitable for downstaging with chemotherapy before undergoing surgery, although if surgery is not possible, adjuvant external beam irradiation is advocated, as an alternative option [1]. Although life expectancy may be short, advanced genital cancers have a significant effect on quality of life for these patients. In this context, surgery has a palliative role in alleviating symptoms in order to allow patients a reasonable quality of life, albeit for a limited period.

The indications for surgery can be broadly divided into those that palliate symptoms and those in which resection of the primary tumour and lymph nodes is part of multimodal therapy with curative intent. Surgery may also be used to treat cutaneous satellite lesions [4]. The various tumours that have been managed exclusively by surgery or as part of a multimodal therapy at the authors' institution include: squamous cell carcinoma of the penis and scrotum; malignant melanoma; transitional cell carcinoma of the urethra; sarcomas and rhabdosarcomas of the penis and paratesticular tissues; urethral squamous cell carcinoma; malignant cystic mesotheliomas.

Principles of Surgery

Preoperative Preparation

Preoperative preparation of the patient should ensure that the patient's motivation and expectations are clear and that they understand that the intention is for palliation of symptoms, although in some cases the surgery is curative. Although most patients will have a poor performance status secondary to the tumour burden, they should still be optimised in order to ensure that they can undergo major surgery and reconstruction. Cardiopulmonary exercise testing can aid in evaluating the mortality risk for these patients [5]. To this end, preoperative optimisation of nutritional status, correction of anaemia, treating underlying infection and prevention of thrombo-embolic events by ensuring antithrombotic prophylaxis and, if necessary, insertion of inferior vena cava filters for patients with established proximal venous thrombi may be necessary.

Preoperative staging using cross-sectional imaging, either computed tomography or magnetic resonance imaging, also allows for preoperative planning [6] and assessment of the inferior epigastric arteries if a pedicled flap is required.

From the outset, a multidisciplinary approach is essential, encompassing the surgical teams, radiologists, pathologists, oncologists, palliative care teams, pain teams, dieticians, physiotherapists, occupational therapists and specialist care nurses.

Operative Principles

In the case of penile cancer with an extensive primary lesion, a penectomy combined with excision of the adjacent tissue (e.g. satellite cutaneous metastases) is required. Urinary diversion can be achieved by creating a neourethra in a hypospadiac manner or if the urethra is not long enough, a perineal urethrostomy or a suprapubic catheter are the alternative options. Where there is direct extension of tumour into the rectum, a defunctioning colostomy may also be required.

Urinary Diversion

A perineal urethrostomy creates a neourethra in the midline of the perineum between the scrotum and the anus. Previously, the patients also underwent an orchidectomy/scrotectomy, although this is no longer required unless there is involvement of these structures by the primary lesion. Although various techniques have been described, we prefer to undertake the procedure in the lithotomy position, followed by an inverted U-shaped incision. The subcutaneous tissue and bulbospongiosus muscle is identified and incised in order to identify the urethra. The urethra is transected and its proximal end is spatulated, which is then sutured to the skin (Fig. 1). Revision may be required in up to 30% of patients from complications, which may include neourethral stenosis in 7–10% [1,7]. After a partial penectomy, a neomeatus can be fashioned at the ventral aspect of the stump with either a split skin graft or penile shaft skin being used to cover the neoglans. In cases where there is adequate penile length, the urethra may be mobilised and re-routed into the intercavernosal space after splitting of the corpora cavernosa in order to create a meatus in a more natural position at the tip.

When tumour invades the posterior urethra or prostate gland, it is not technically possible to form a perineal urethrostomy. In these cases, we have used one of the following techniques after resecting the tumour: formation of an ileal conduit with the bladder left *in situ*; cystectomy and an ileal conduit; bladder neck closure and Mitrofanoff.