Values of Early Second Transurethral Resection in Patients with Superficial Urinary Bladder Tumors

Essay

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بِسْمِ اللَّهِ الرَّحمَنِ الرَّحيمِ

[...رَبِّ أَوزِعنِي أَن أَشكُرَ نِعمَتَكَ
الَّتِي أَنْعَمْتَ عَلَيَّ وعَلى والِدَيَّ

وأَنْ أَعْمَلَ صَالِحاً تَرْضَاهُ
وأَدْخِلْنِي بِرَحْمَتِكَ
فِي عِبَادِكَ الصَّالِحِينَ]

صدق الله العظيم

النمل.. اية رقم ١٩

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Maher Ahmed Mohammed Ahmed

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Introduction

Worldwide, bladder cancer (BCa) is the seventh most common malignancy in men and the seventeenth most common malignancy in women ***(Grasso and Eur Urol Suppl 2008).***

Approximately 75-85% of all patients with BCa have disease confined to the mucosa (stage Ta or stage carcinoma in situ [CIS]) or submucosa (stage T1). This group of tumours is referred to as non-muscle-invasive or superficial BC as opposed to muscle-invasive disease staged as T2-T4 ***(Rigaud Urol et al., 2002)***.

Transurethral resection (TUR) of bladder tumours is the mainstay in the diagnosis and treatment of bladder cancer. The first and most important rule is the complete resection of the superficial tumours. This procedure is not only mandatory for adequate staging but also crucial in delaying or preventing tumour recurrence and progression ***(Brauers, et al., 2001)***.

Transurethral resection is used primarily in muscle-invasive bladder cancer to establish the diagnosis and local extent of the disease. The use of Transurethral resection tumor for definitive treatment of non muscle-invasive bladder cancer is predicated on tumor volume, multifocality,

and associated carcinoma in situ (CIS). Understaging of the depth of tumor involvement occurs in up to 40% of cases. Nevertheless, several series have shown that TURT provides disease control, particularly in patients with lower clinical disease stages (***Ricos et al., 1992).***

The classification of superficial bladder tumor or better-known nonmuscle-invasive bladder tumors is based on two pillars: (1) the clinical stage following the TNM classification differentiating between Ta, which includes tumors not invading the submucosa, and T1, which invades the submucosa, but not the muscularis propria; and (2) the histological grade that refers to the 1973 WHO grading system based on the microscopic appearance of cancer cells. However, the major limitation of this classification is the vague definition and the lack of specific histological criteria without a reliable inter- and intraobserved correlation ***(Murphy et al., 2002).***

Transurethral resection tumor is the key diagnostic modality to determine whether patients have bladder cancer that can be treated locally or requires more aggressive, surgical treatment. While TUR is an extremely common urologic procedure, it is not without complications ***(Hollenbeck, et al., 2006).***

Unfortunately, the efficiency of the procedure is not optimal. Although TURT is a procedure familiar to all urologists, it is not easy to perform and may not always achieve the desired goals. Moreover, its potential failures have negative impacts on patient outcomes. It was shown that many of the so-called early recurrences are in fact persistent tumours that were overlooked and left behind during resection ***(Brausi et al., 2002)***.

The definition of complete and correct resection is to eradicate all macroscopic tumours, preferably in fractions, which includes the exophytic part of the tumour, the underlying bladder wall with the detrusor muscle, and the edges of the resection area. The specimens from different fractions must be sent to the pathologist in separate containers. Cauterisation has to be avoided as much as possible during the resection to prevent tissue destruction. The pathologic report should specify the grade of the lesion and the depth of tumour invasion into the bladder wall and provide information on whether the lamina propria and muscle are present in the specimen ***(Babjuk et al., 2008)***.

Second TURT refers only to those procedures performed 2-6 weeks following the complete TURT of the bladder (TURBT) defined above.

No body can guarantee that a complete TURT has been performed for the non-visualising microscopic tumours on the base or margins of the tumours. Nevertheless, the surgeon has to report that all visible tumours have been resected, and the pathologist has to reveal that lamina propria and muscularis propria were obtained. Moreover, the term second TURT should not be used for the repeat resection after incomplete resection having left behind residual tumour tissue because of factors such as multiplicity, size, and location. Restaging TUR is another term referring to TUR that provides additional pathologic information for the lamina propria or muscularis propria. Both the rate of the residual tumour and understaging after second TUR were reported, with a range of 28% to 74% and 1.7% to 64%, respectively, because of the complexities of definitions ***(Divrik, et al., 2006)***.

This study to show the positive impact of routine second TUR and its Values In Patients With Superficial Urinary Bladder Tumors on the long-term outcome ***(Zurkirchen et al., 2004).***

Aim of the Work

- Showing change in the stage or grade of the tumor in patients with superficial bladder tumors by TURT.
- Change of subsequent treatment strategy of patients with non invasive bladder cancer after Re-TUR.

Chapter (1):
Anatomy of Urinary Bladder

The urinary bladder is a reservoir. Its size, shape, position and relations all vary according to its content and the state of neighbouring viscera. When the bladder is empty, it lies entirely in the lesser pelvis, but as it distends it expands anterosuperiorly into the abdominal cavity. An empty bladder is somewhat tetrahedral and has a base (fundus), neck, apex, a superior and two inferolateral surfaces. When filled, the bladder has a capacity of approximately 500 mL and assumes an ovoid shape. The empty bladder is tetrahedral and is described as having a superior surface with an apex at the urachus, two inferolateral surfaces, and a posteroinferior surface or base with the bladder neck at the lowest point ***(Brooks, 2007).***

The base of the bladder is triangular and located posteroinferiorly. In females it is closely related to the anterior vaginal wall, the vagina and uterus intervene between the bladder and the rectum, so that the base of the bladder and urethra rest on the anterior vaginal wall; in males it is related to the rectum although it is separated from it above by the rectovesical pouch, and below by the seminal vesicle and vas deferens on each side and Denonvillier's fascia. The bladder neck is essentially the internal urethral orifice, which lies in a constant position, independent of the varying positions of the bladder and rectum. In males the neck rests on, and is in direct continuity with, the base of the prostate; in females it is related to

the pelvic fascia, which surrounds the upper urethra. In both sexes the apex of the bladder faces towards the upper part of the symphysis pubis ***(Standring 2008).***

The urachus anchors the bladder to the anterior abdominal wall. The urachus is composed of longitudinal smooth muscle bundles derived from the bladder wall. Near the umbilicus, it becomes more fibrous and usually fuses with one of the obliterated umbilical arteries. Urachal vessels run longitudinally and the ends of the urachus must be ligated when it is divided ***(Brooks, 2007).***

The anterior inferolateral surfaces of the bladder are separated from the transversalis fascia by fat in the potential retropubic space (of Retzius); it is more adherent to the bladder than to the anterior surface of the prostate, which aids reliable identification of the region of the bladder neck surgically. The inferolateral surfaces are not covered by peritoneum. In males, each inferolateral surface is related anteriorly to the pubis and puboprostatic ligaments. In females the relations are similar, except that the pubovesical ligaments replace the puboprostatic ligaments ***(Standring, 2008).***

The triangular superior surface is bounded by lateral borders from the apex to the ureteric entrances, and by a posterior border which joins them. In males the superior surface is completely covered by peritoneum, which extends slightly

onto the base and continues posteriorly into the rectovesical pouch and anteriorly into the median umbilical fold: it is in contact with the sigmoid colon and the terminal coils of the ileum. In females the superior surface is largely covered by peritoneum, which is reflected posteriorly onto the uterus at the level of the internal os (the junction of the uterine body and cervix), to form the vesicouterine pouch. The posterior part of the superior surface, devoid of peritoneum, is separated from the supravaginal cervix by fibroareolar tissue ***(Standring 2008).***

The bladder is supplied principally by the superior and inferior vesical arteries, derived from the anterior trunk of the internal iliac artery, supplemented by the obturator and inferior gluteal arteries In the female additional branches are derived from the uterine and vaginal arteries ***(Hinman, 1998).***

The superior vesical artery supplies many branches to the fundus of the bladder. Other branches supply the ureter. The beginning of the superior vesical artery is the proximal, patent section of the fetal umbilical artery. The inferior vesical artery often arises with the middle rectal artery from the internal iliac artery. It supplies the base of the bladder, prostate, seminal vesicles and lower ureter ***(Standring, 2008).***

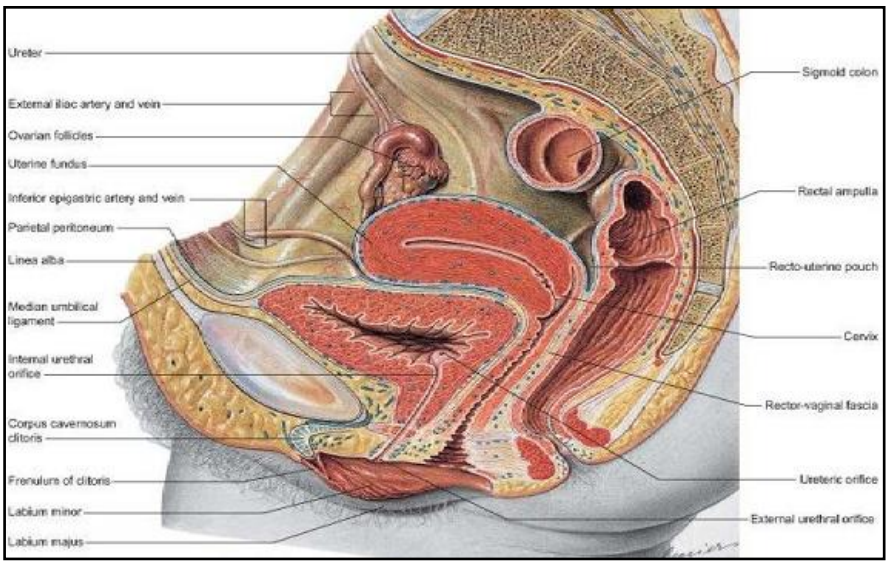

Figure (1): Relations of the female bladder, sagittal section of the pelvis ***(Standring, 2008).***

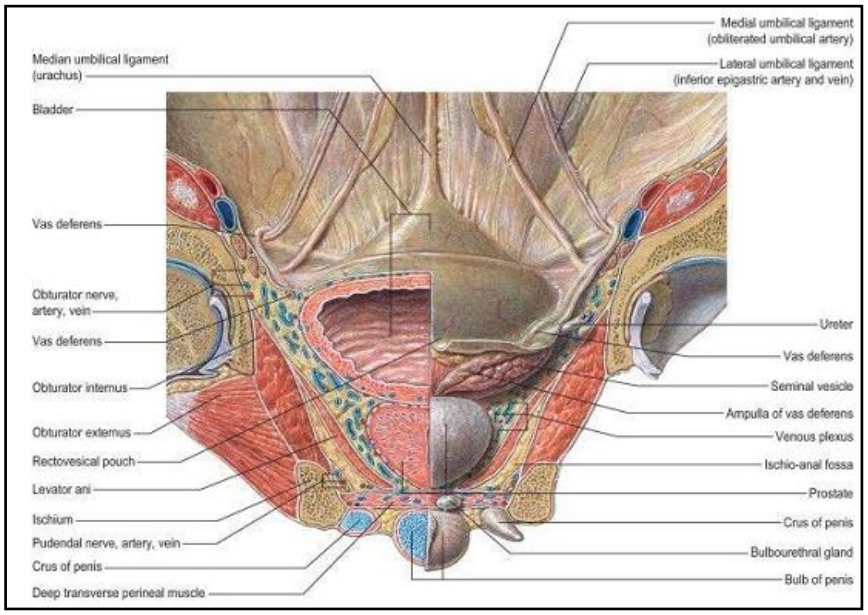

Figure (2): Internal aspect of anterior abdominal wall and male anterior pelvic viscera ***(Standring, 2008).***