Alternative Methods of Diagnosis and Staging of Bladder Cancer

M. F. Trapeznikova

Moscow Regional Clinical Institute, Moscow, USSR

Summary. A survey of the conventional diagnostic measures in bladder carcinoma is given. The importance of additional methods, such as pelvic arteriography and phlebography, lymphography and lymphoscanning is evaluated.

Key words: Urinary bladder cancer - Pelvic angiography - lymphoscanning - Lymphography.

Classification of bladder cancer according to its stage is essential since non-invasive tumours seldom develop metastases and therefore have a more favourable prognosis. Tumours invading the bladder wall and even more so penetrating the perivesical fat metastasise more frequently in proportion to their invasive growth.

Data based on the observation of 450 patients with tumours of the urinary bladder, show that in cases where the tumour penetrated the bladder wall 50% of the patients had metastases and in cases of the tumour penetrating the perivesical fat metastases developed in 71% of the patients. The possibility of such patients developing clinically silent metastases to the bones, lungs and liver is considerable.

All existing classifications of bladder cancer can be divided into 2 large groups based on either the histological appearances of the tumour or on clinical and anatomical features.

The most adequate classification, using the TNMP system, was presented by the International Cancer Union in 1973. It is based on 3 main points:

1. Invasive growth of the tumour and its stage.
2. Involvement of lymph nodes and presence of metastases.
3. Data from histological examination.

However the well known classification of Jewett and Marshall is more convenient for the clinician.

Considering that prognosis and treatment depend upon tumour stage, all available methods should be used for the most accurate assessment of the stage of the disease.

On the basis of our own experience the following procedures are suggested in order to determine the stage of the tumour.

Conventional Diagnostic Measures

Haematuria and dysuria which are the main symptoms of a tumour of the urinary bladder serve as an imperative indication for cystoscopic examination. The cystoscopic examination shows the presence of the tumour and partly its character, size and localisation.

Bimanual palpation preferably under anaesthesia, reveals penetration of tumour outside the urinary bladder. All patients undergo excretory urography demonstrating the upper urinary tract, biopsy of the tumour and cytological examination of the urine. Various modifications of cystography provide an objective picture of the size of the tumour, its localisation and to a certain degree of the depth of the invasive growth.

Pelvic Arteriography

If there is suspicion that the tumour penetrates the bladder wall and the perivesical fat (stages T2-T4 or B1, B2, C) arteriography is indicated.
The results of this investigation are especially important when the tumour is on the base of the bladder or surrounds the bladder neck or the trigonum, and when other methods cannot give an objective picture of the degree of the invasive growth. The diagnosis is based on changes in pelvic architectonics, expressing themselves in hypervascularisation of the tumour, pathological tumour vessels in the arterial phase, the appearance of the shadow of the tumour in the capillary phase and the premature filling of the venous channels inside the tumour.

In stages T1S - T1 (O; A) there are no changes visible on arteriography. In stage T2 (B1), deformed, tortuous vessels are seen. In the capillary phase the shadow of the tumour appears as a faint shadow of the contrast medium. There are no changes in the venous phase. In stage T3 (B2) all changes in the arterial phase are more pronounced. There are numerous tortuous arteries. In the