

**Figure 21-13** Hypertrophy and trabeculation of bladder wall secondary to polypoid hyperplasia of the prostate.

- Other epithelial bladder tumor variants may occur, either alone or mixed with urothelial carcinoma, including squamous cell carcinoma, adenocarcinoma and small cell carcinoma.

## Obstruction

Obstruction of the bladder outlet is of major clinical importance because of its eventual effect on the kidney. In males, the most common cause is enlargement of the prostate gland due to nodular hyperplasia (Fig. 21-13). Bladder obstruction is less common in females and is most often caused by cystocele of the bladder. Infrequent causes are (1) congenital urethral strictures, (2) inflammatory urethral strictures, (3) inflammatory fibrosis and contraction of the bladder, (4) bladder tumors, either benign or malignant, (5) invasion of the bladder neck by tumors arising in contiguous organs, (6) mechanical obstructions caused by foreign bodies and calculi, and (7) injury of nerves controlling bladder contraction (neurogenic bladder).

## MORPHOLOGY

In the early stages there is only thickening of the bladder wall due to smooth muscle hypertrophy. With progressive hypertrophy the individual muscle bundles greatly enlarge and produce trabeculation of the bladder wall. In the course of time, crypts form and may be converted into diverticula.

In some cases of acute obstruction or in terminal disease when the patient's normal reflex mechanisms are depressed, the bladder may become extremely dilated. The enlarged bladder may reach the brim of the pelvis or even the level of the umbilicus. In these cases the bladder wall is markedly thinned and lacks trabeculations.

## Urethra

### Inflammation

Urethritis is classically divided into gonococcal and nongonococcal causes. *Gonococcal urethritis* is one of the earliest

manifestations of this venereal infection. *Nongonococcal urethritis* is common and can be caused by several different organisms. Various strains of *Chlamydia* (e.g., *C. trachomatis*) are the cause of 25% to 60% of nongonococcal urethritis in men and about 20% in women. *Mycoplasma (Ureaplasma urealyticum)* also accounts for the symptoms of urethritis in many cases. Urethritis is often accompanied by cystitis in women and by prostatitis in men. In many instances of suspected bacterial urethritis, no organism can be isolated. Some urethritis is truly noninfectious in origin. An example of such an inflammatory urethritis is a disorder known as *reactive arthritis*, which is associated with the clinical triad of arthritis, conjunctivitis, and urethritis (Chapter 26).

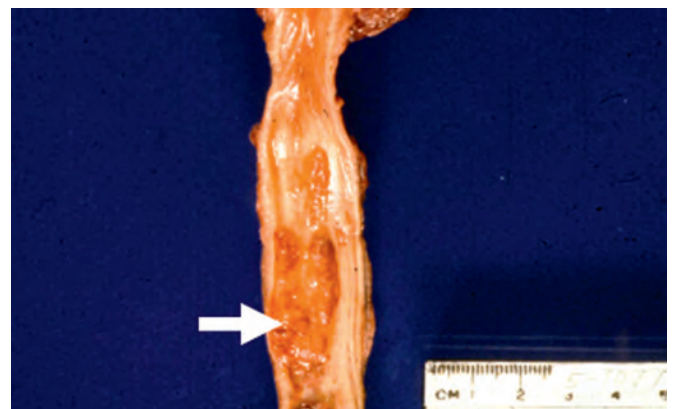
The morphologic changes are entirely typical of inflammation in other sites within the urinary tract. The urethral involvement is not itself a serious clinical problem but may cause considerable local pain, itching, and frequency, and may warn of more serious disease at higher levels of the urogenital tract.

## Tumors and Tumor-like Lesions

*Urethral caruncle* is an inflammatory lesion that presents as a small, red, painful mass about the external urethral meatus, typically in older females. It consists of inflamed granulation tissue covered by an intact but extremely friable mucosa, which may ulcerate and bleed with the slightest trauma. Surgical excision affords prompt relief and cure.

*Benign epithelial tumors* of the urethra include squamous and urothelial papillomas, inverted urothelial papillomas, and condylomas.

*Primary carcinoma of the urethra* is an uncommon lesion (Fig. 21-14). Tumors arising within the proximal urethra tend to show urothelial differentiation and are analogous to those occurring within the bladder, whereas lesions found within the distal urethra are more often squamous cell carcinomas. Adeno carcinomas are infrequent in the urethra and generally occur in women. Some neoplastic lesions of the urethra are similar to those described in the bladder, arising through metaplasia or, less commonly, from periurethral glands. Cancers arising within the prostatic urethra are dealt with in the section on the prostate.



**Figure 21-14** Carcinoma of urethra with typical fungating growth.