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LITTLE GLAND, BIG TROUBLE

Read This First

What Can Go Wrong With the Prostate: Cancer, BPH, and Prostatitis

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▶▶▶ READ THIS FIRST

At some point in their lives, most men are going to have to come to terms with the prostate, because this little gland is the source of three of the major, common health problems that affect men:

- Prostate cancer, the most common cancer in men;
- Benign prostatic hyperplasia (BPH), also known as enlargement of the prostate, one of the most common benign tumors in men; and
- Prostatitis, a painful inflammation of the prostate and the most common cause of urinary tract infections in men.

This news usually comes as an unpleasant shock, because most men don't even know that they have a prostate until something goes wrong. Worse, because there is no "statute of limitations" on prostate

problems, some men are unlucky enough to endure more than one of these disorders. (In fact, some men find out they have prostate cancer during a routine procedure to treat BPH.) You may suddenly experience a bout of prostatitis or develop urinary problems because of prostate enlargement. Or your “wake-up call” to the prostate may be an abnormal prostate-specific antigen (PSA) blood test, or a suspicious lump felt during a rectal exam, raising the possibility that you have prostate cancer. Thus, it’s important for you to understand all of the “Big Three” prostate disorders.

Here’s what you need to know.

PROSTATE CANCER

This is the most common cancer in men, and the third leading cause of cancer death in men. Because prostate cancer is the subject of this entire book, the only important point you need to know right now is that *when prostate cancer is small, it is curable*. However, because it is “silent” and produces no early-warning symptoms, routine testing is very important. How can we save lives from prostate cancer? The rest of this book is devoted to answering this question. The key is a four-pronged approach—prevention, early diagnosis, better treatment for localized disease (cancer confined to the prostate) with fewer side effects, and better control of advanced disease.

BPH, OR ENLARGEMENT OF THE PROSTATE

BPH is so common that most men, if they live long enough, will develop it. By age seventy, 70 percent of men have it, and one-quarter of men with the disease require treatment. BPH is not prostate cancer, and having it does not mean that a man is more or less likely to get prostate cancer. BPH and prostate cancer are two different diseases that develop in different regions of the prostate—almost as if the prostate were two glands rolled into one. Prostate cancer begins in the outer, peripheral zone of the prostate and grows *outward*, invading surrounding tissues; that’s why it rarely produces symptoms until it is far advanced. On the other hand, BPH begins in a tiny area of the inner prostate called the transition zone—a ring of tissue that makes a natural circle around the urethra, the tube through which urine and semen exit the body. In BPH, the growth is *inward*, toward the prostate’s core, constantly tight-

ening around the urethra and interfering with urination (which is why symptoms are almost impossible to ignore). BPH is a very common condition that affects most men. It is not cancerous, but it can mimic cancer. Today, there are many good ways to treat it, and most of them have few side effects.

PROSTATITIS

Prostatitis is the most common cause of urinary tract infection in men, and an estimated 25 percent of all men who see a doctor for urological problems have symptoms of prostatitis. There are four conditions lumped under the umbrella name “prostatitis.” The two least common and easiest to treat are caused by bacterial infection: acute and chronic bacterial prostatitis. These conditions are usually associated with fever, chills, severe burning on urination, increased frequency of urination, and, in some cases, a life-threatening infection in the bloodstream. Next, two forms of prostatitis fall into a category called chronic prostatitis/chronic pelvic pain syndrome. Nobody knows what causes these forms of prostatitis, and antibiotics do not help at all. The treatment here is largely aimed at relieving symptoms, with muscle relaxants such as alpha-blockers and other drugs, which ease muscle tension in the prostate and make urination easier. There’s another, mysterious category known as asymptomatic inflammatory prostatitis, which produces no symptoms and is usually found by chance, when inflammatory cells are found in the prostatic fluid or inflammation is detected on a prostate biopsy. If it produces no symptoms, is it something we should even worry about? Maybe. We’re still learning about this inflammation, and, although it is not cancer, it may be linked with the formation of cancer. In other words, whatever causes the inflammation may eventually cause cancer as well. (See chapter 3 for more on this.)

The best thing to know about prostatitis is that it is not cancer. The treatment for most prostatitis (except the bacterial kind, which responds to antibiotics) is often trial and error. Therefore, it helps if men and their doctors can work together, with much patience, to come up with the right plan. There is, however, some exciting new research that may help us find new ways to manage prostatitis. Many men have found that their symptoms improve when they change their diet and lifestyle.

What Can Go Wrong With the Prostate: Cancer, BPH, and Prostatitis

For most young men, the prostate falls into the category “obscure body parts” that includes the spleen—that is, it’s in there someplace, it probably does something useful, but it’s best dealt with on a need-to-know basis.

Unfortunately, most men *are* going to need to know about the prostate sometime, because this little gland is the source of three of the major health problems that affect men: prostate cancer, the most common major cancer in men; benign enlargement of the prostate (BPH, or benign prostatic hyperplasia), one of the most common benign tumors in men and a source of symptoms for most men as they age; and prostatitis, painful inflammation of the prostate, the most common cause of urinary tract infections in men. Worse, because there’s no “statute of limitations” on prostate problems, some men are unlucky enough to endure more than one of these disorders. For example, having BPH or prostatitis doesn’t mean a man has “had his prostate trouble” and won’t have further difficulty—either a return of symptoms or a new problem entirely, such as prostate cancer. Although this is a book about prostate cancer, when it comes to making the diagnosis and planning treatment, the other prostate disorders must be considered, too. Thus, it’s important that men know about all of the “Big Three” prostate problems—what they are, how they are treated, and their telltale symptoms.

Fortunately, effective treatment and relief of symptoms is available for all of these prostate disorders. *Even prostate cancer, when caught early, is curable*—generally without causing loss of urinary control or sexual function. Better still, for the first time ever, we are very close to understanding how to keep advanced cancer in check, perhaps even for years.

Prostate Cancer

Prostate cancer is the most common major cancer in men and the third leading cause of cancer death in men. Because prostate cancer is the subject of this entire book, we’ll use this space only to make one point: when prostate cancer is small and curable, it is also silent—it

produces no symptoms. That's why routine testing is so important—to detect cancer as early as possible. If it's caught too late, prostate cancer can be deadly, and if the disease is allowed to run its course, it can produce terrible symptoms and excruciating pain. But if caught in time, before the cancer spreads beyond the wall of the prostate, prostate cancer can be cured with surgery or radiation. For some men with small, slow-growing tumors, a process called expectant management—following the disease closely—may be a safe option (see chapter 7).

Treatment of prostate cancer is better than ever: we are now able to cure prostate cancer in more men, and with fewer side effects, than ever before. And, for the first time, groundbreaking research and novel methods aimed at stopping advanced prostate cancer in its tracks are starting to pay off, with promising new drugs now being tested in patients. Even though in some men we may not be able to cure prostate cancer, we may be able to stop it from growing further—which makes it very likely that, within a few years, men with advanced disease will die *with* prostate cancer but not *of* it. How can we save lives from prostate cancer? The key is a four-pronged approach:

- Prevention—to ward off prostate cancer entirely, or at least delay its onset for decades.
- Earlier diagnosis—with the help of highly sensitive tests and sophisticated models for analyzing the results, detecting prostate cancer at the earliest and most curable stages yet.
- Better treatment for localized disease—expanding and refining effective treatments, and working to minimize side effects even further.
- Better control of advanced disease.

Next, we cover the other two major prostate problems: BPH and prostatitis. Because none of the “Big Three” prostate diseases precludes the others, it is possible for a man to have more than one, even at the same time. However, if you don't have one of these problems, you may wish to go on to chapter 3 now and refer to the rest of this chapter—just like those young men we mentioned earlier—on a “need-to-know” basis.

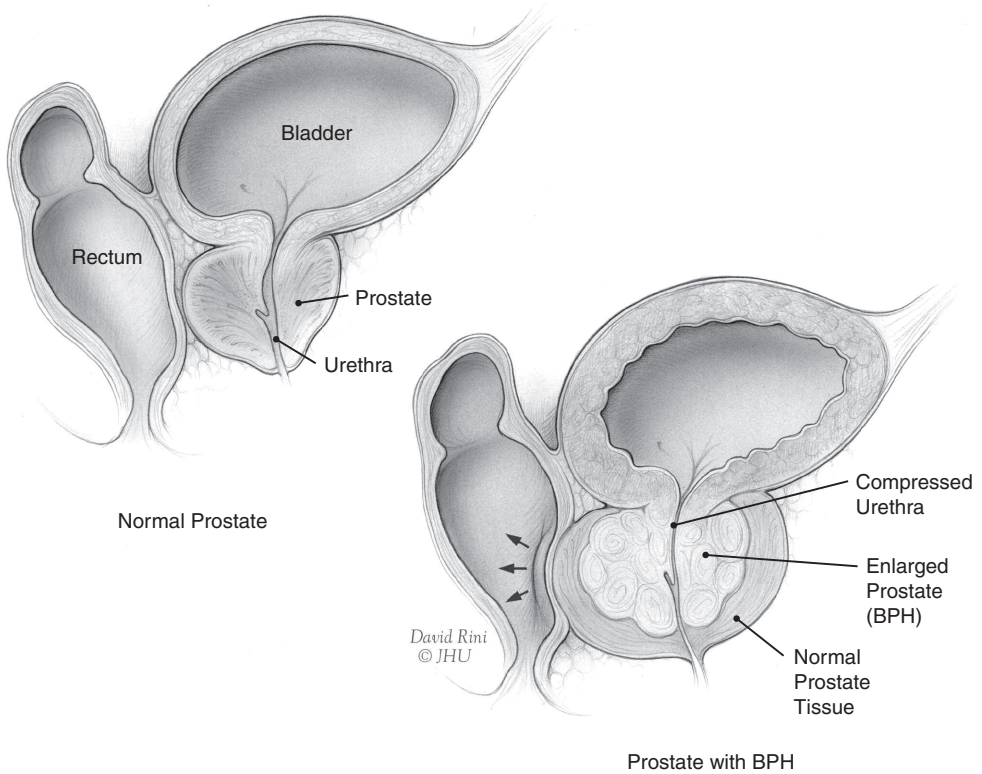


Figure 2.1 How BPH Squashes the Urethra

Here are two prostates—one with BPH, one without. What a difference! In the prostate with BPH, lumpy growths of glandular tissue plus tightening smooth muscle tissue act as a “double whammy” to choke the poor urethra and make urination increasingly difficult.

Benign Prostatic Hyperplasia

Benjamin Franklin reportedly suffered from it; so did Thomas Jefferson. So will most men, if they live long enough. This almost inevitable condition is called benign prostatic hyperplasia (BPH), or enlargement of the prostate. The risk of BPH increases every year after age forty: BPH is present in 20 percent of men in their fifties, 60 percent of men in their sixties, and 70 percent of men by age seventy. One-quarter of men with BPH—more than 350,000 a year in the United States alone—eventually will require treatment, some of them more than once, to relieve the urinary obstruction BPH causes.

Before the 1990s, there was no effective medical (as opposed to surgical) treatment for this disorder. Men diagnosed with BPH were usually sent home and told to return when their symptoms were severe enough to warrant surgery. Just a decade ago, an American man had a 25 percent risk of undergoing prostate surgery for benign disease at some point in his life. In fact, BPH is still a common cause of surgery in American men over age fifty-five.

In recent years, as medical therapy has become available, more men have sought treatment to relieve their symptoms. Based on the figures mentioned above, it's likely that after age sixty, a majority of men will either be taking medication for BPH or considering it. However, not all of these men will be helped by the medicine: for men with severe symptoms or men who wait until the disease is far advanced before they seek treatment, surgery is still the best option.

Note: *Growth is not the same thing as cancer. BPH is not prostate cancer*, and having it doesn't mean a man is more or less likely to get prostate cancer. They're two different diseases—and in some ways, the prostate is almost like two different glands rolled into one. (However, because both BPH and prostate cancer are associated with aging, scientists are wondering if there are any other connections that we don't know about—see page 27.) Prostate cancer begins in the outer peripheral zone of the prostate (see fig. 1.3), and grows *outward*, invading surrounding tissue. BPH begins in a tiny area of the inner prostate called the transition zone, a ring of tissue that makes a natural circle around the urethra. In BPH, the growth is *inward* toward the prostate's core, constantly tightening around the urethra (the tube that carries urine from the bladder through the prostate to the penis) and interfering with urination (see fig. 2.1). This is why BPH produces such annoying, difficult-to-ignore symptoms—but why prostate cancer is often “silent,” producing no symptoms for months or even years. The key word here is benign. (The word hyperplasia simply means an increase in the number of cells in the prostate, which causes it to become enlarged.) By itself, an enlarged prostate causes no symptoms and does no harm. If it weren't for the fact that the prostate encircles the urethra, BPH might never require treatment.

What Causes It?

The quick answer is, we don't know. Like wrinkles and gray hair, BPH just seems to come with the territory of aging. For reasons that are not clear, beginning at around age forty—in some men more than others—the inner zone of the prostate begins to grow. But even this is more complicated than it sounds. BPH involves two different kinds of tissue: glandular, made up of epithelial cells (the glandular factories that make the prostate's secretions) and smooth muscle cells (which contract to squeeze the secretions into the urethra). Somehow, BPH sets these two types of tissue at odds: it's the epithelial tissue that makes the lumpy lobes, but the smooth muscle tissue reacts to this buildup by tightening around the urethra.

Scientists suspect that the aging prostate somehow becomes more sensitive to testosterone, even though there's less of it floating around in the bloodstream. Why? As men age, testosterone production starts to fall—but the body's levels of estrogen (which normally are very low in men) remain about the same. We know that even a slight amount of estrogen can make testosterone more powerful; it may be that this imbalance in androgen and estrogen levels contributes to the disease. Also, the tissue changes in BPH may be triggered by substances called growth factors, possibly those made by muscle cells in the prostate.

Curiously, even though the tissue is growing—which normally would mean a big increase in the number of cells being made—the enlarging prostate makes about the same number of cells as always. How can this be? In any tissue, there is a finely tuned balance between the number of new cells and the number of cells that are dying. Apparently, the population boom in BPH isn't due to an increase in cell birth but to a decrease in cell death. For some reason, the cells in BPH are living much longer. Some process—perhaps an increase in growth factors—has altered their normal life span, creating a “fountain of youth” for prostate cells. Although the growth is not malignant, the process is similar to what's happening in prostate cancer—which suggests that, once we understand the factors that control cell death in BPH, we may have a better approach for controlling it in cancer as well.

BPH: NEW MARKERS AND NEW QUESTIONS

BPH, Like Cancer, Can Be “Good” or “Bad.” BPH doesn’t just affect the prostate and, although it isn’t cancer, it isn’t always benign. It affects the bladder, and in severe form, its symptoms can be debilitating. “Until recently, all BPH was considered to be a single disease,” notes Robert Getzenberg, Director of Research at the Brady Urological Institute at Johns Hopkins. But his research group has found a genetic marker called JM-27 that’s associated with the most aggressive type of BPH. Further, Getzenberg and colleagues have developed a blood test that can determine whether a man has the most severe form of BPH or whether his case is mild. They hope that this test will even be able to predict how a man will respond to various treatments of BPH. “This is the first BPH-specific marker that has been identified, and we hope it will play a role in how men are treated for the disease,” he says.

BPH and Cancer—Any Connection? BPH and prostate cancer affect different regions of the prostate, but they’re both associated with aging. They may have other things in common as well, says Getzenberg. “We have identified a series of genes that appear to be altered in *both* BPH and prostate cancer. There may be much more connection between BPH and prostate cancer than we originally envisioned. Understanding more about the development of each of these diseases will help us develop better tools with which to attack them both.”

Does BPH Run in Some Families?

Several studies at Johns Hopkins suggest that it does. Hopkins scientists believe that for a small number of men—about 7 percent—age isn’t the only major risk factor. These men probably have inherited one or more genes that somehow make them prone to BPH. In one investigation, scientists studied men aged sixty-four and younger with notable prostate enlargement. They also studied their relatives and family histories. They found that the male relatives of these men were four times as likely as other men to require a prostatectomy to treat BPH. And brothers of these men were six times as likely as other men to need surgery to treat BPH. Understanding how the disease works in these men—specifically, identifying the genes involved—may provide major insight into the far more common form of BPH (see box above) and one day may even help us prevent it. If you have

a strong family history of BPH, scientists at Johns Hopkins would be very interested in hearing from you. (Send inquiries to the Hereditary Prostate Disease Study, James Buchanan Brady Urological Institute, Johns Hopkins Hospital, Baltimore, MD 21287–2101, Attention: Dr. Patrick Walsh.)

What Does BPH Feel Like?

How does what's happening on the inside translate to the outside—into symptoms and their impact on a man's life? It varies: BPH is a different disease in every man, depending on a delicate interplay of factors, including the shape of the growth, the specific tissue involved, and how these variables affect the bladder. As the cell growth progresses, the tissue becomes lumpy. Bulbous nodules begin sprouting like mushrooms, forming characteristic clusters, or lobes.

These lobes tend to arrange themselves in one of three basic configurations. Lateral lobe enlargement features big knobs that sandwich the urethra. When a man urinates, these lobes can swing open and shut like double doors (think of a saloon in a cowboy movie), so despite their size, they may not produce much urinary obstruction. In middle lobe enlargement, the lobe bobs around the bladder neck, plugging it like a cork in a bottle and causing a man great difficulty with urination. (Because this form of BPH is much harder to ignore than lateral lobe enlargement, men who have it are far more likely to seek medical relief for their symptoms.) And in trilobar enlargement, the obstruction can happen in the bladder neck as well as in the urethra.

As the prostate squeezes the urethra, it impedes urine flow. This may manifest itself as frequent urination, needing to go to the bathroom several times an hour; hesitancy, or having to wait for the urinary stream to start; urgency, or the sudden sensation of needing to urinate, which may culminate in involuntary urine leakage before you reach the bathroom; repeatedly awakening in the night to urinate; starting and stopping during urination; and a constant feeling of fullness in the bladder. BPH can also lead to urinary tract infections and, rarely, can cause damage to the bladder or kidneys. It is often frustrating, annoying, and disruptive.

Think of a man's necktie slowly starting to tighten around his

collar. This is what happens, over time, as the prostate's inward growth toward the urethra takes its toll. At first or in mild cases, this can mean an irritating but still tolerable change in quality of life. However, when it progresses beyond the nuisance point—when the bladder is never completely empty, or when the kidney or bladder become damaged—it needs to be treated.

At first, BPH is invisible. It causes few symptoms, because the powerful bladder muscle compensates for the narrowed urethra by making more vigorous contractions and forcing urine through the prostate. But over time, this extra effort takes its toll on the bladder, making it less efficient. This is when a man may notice a decreased flow rate and obstructive symptoms. The bladder, after months of heavy duty, also becomes a victim of its own powerful muscles: The muscle-bound bladder wall thickens and loses its elasticity. With all that extra muscle, the bladder can't hold as much as it used to; it becomes unstable and overly reactive. When this happens, a man feels the need to urinate more often—unfortunately, sometimes spontaneously. These are irritative symptoms: urge incontinence (when a man knows he has to urinate but can't make it to the bathroom in time) and nocturia (the need to urinate often during the night). Nocturia can also happen (or be made worse) if a man is unable to empty his bladder completely. If the bladder is always partly full with leftover urine, it doesn't take much—half a glass of water, even—to fill it all the way. Some of our patients joke that they've spent the first half of their lives making money, and they're spending the second half making water. Imagine how disruptive and frustrating it is for a man to have to go to the bathroom twice as often as he normally would.

How Do You Know If You Have It?

Some men go right to a specialist, a urologist, for help with their urinary problems, but most men start out with a generalist—their family doctor or internist. Most likely, all of these doctors will approach your symptoms the same way: there should be a digital rectal examination and a PSA blood test. (These and other diagnostic tests are discussed in chapter 5.) You should be referred to a urologist if your doctor suspects BPH (or, for that matter, prostatitis or prostate cancer).

Because other conditions can mimic BPH, your doctor will probably begin by taking a detailed medical history and performing a physical exam. It is very important for your doctor to know your entire medical history, even if you have what appears to be a classic case of BPH. For example, an injury to the urethra (from having a catheter inserted into the bladder during a surgical procedure, perhaps) can create a urethral stricture—scar tissue that narrows the urethra—that has nothing to do with the prostate but does a great impersonation of BPH. Blood in the urine or pain in the bladder or penis could point to a bladder tumor or mean that a stone has developed in the bladder, prostate, or kidney. If you have a history of urologic trouble—recurrent urinary tract infections, for example, or prostatitis—it could be that an old problem has returned, but in disguise. BPH symptoms can also be produced by bladder cancer, prostate cancer, and neurogenic bladder (trouble with bladder function caused by a neurological problem, such as Parkinson's disease).

You will also be asked to score the severity of your symptoms and how much they bother you on a questionnaire called the International Prostate Symptom Score (IPSS), which appears below. This is a series of seven questions that can be answered on a scale from 1 to 5. (Briefly, symptoms are considered mild if the score total is 0 to 7, moderate if it's 8 to 19, and severe if it's 20 to 35.) The last question is the most important of all: How much do the symptoms bother you? This is critical, because BPH is not life-threatening. All of its treatments are directed at relieving symptoms—which means this symptom score will be the main basis for selecting therapy. (Thus, it is essential that you be brutally honest—rather than stoic and long-suffering or overly optimistic that this problem will go away by itself—in answering these questions.) The big question your doctor needs answered—and the one only you can decide—is whether you could live the rest of your life this way. Are you changing your life to accommodate BPH—giving up seats to a basketball game, for instance, so you won't have to tough it out in the long lines at the men's room? Are you planning your day around trips to the bathroom? If not—if you can put up with it for now—then you may choose to delay treatment. But if this problem is driving you crazy and disrupting your life, then it may be time to seek treatment.

The physical examination is discussed in detail in chapter 5. With

BPH—because the disease affects only the innermost core of the prostate—your doctor may not be able to feel anything out of the ordinary. It's important to keep in mind that the size of the prostate may have nothing to do with the degree of symptoms. Some men with major prostate enlargement have no urinary tract trouble, while other men with seemingly minor enlargement or even a small prostate can suffer terrible problems from obstruction. Again, it all depends on where the trouble is (see above for a discussion of the types of BPH).

You may also need other tests, including:

Uroflowmetry

This test measures the speed of your urinary stream and the amount of urine you pass, and is done as you urinate (while you're alone in a testing room) into an electronic machine. (It's a urological version of the radar gun used to measure professional baseball pitchers' throws.) To ensure an accurate result, it's important that you urinate at least 5 or 6 ounces. This test can identify men whose maximum flow rate is not noticeably diminished and who may not benefit from treatment. (The normal peak urinary flow rate is 15 cubic centiliters or more per second.)

Ultrasound

This is a painless imaging technique. It creates a picture by bouncing high-frequency sound waves off an object, like sonar on a submarine. It can be performed from the outside, through the abdomen, or transrectally, using a wand inserted in the rectum. Though not recommended for most men with BPH, ultrasound may be helpful in diagnosing such problems as obstruction of the kidney, stones, or a hidden tumor in the upper urinary tract; in estimating how well the bladder is emptying; and in determining the size of the prostate.

Residual Urine Measurement

If you're not emptying your bladder completely, this important test will find out. Further, it will show how much urine you're leaving behind. This can be done indirectly by an ultrasound examination of the lower abdomen immediately after you urinate or directly by inserting a small catheter into the bladder (like a dipstick) and measuring

what's there. These measurements can be a helpful means of following the course of BPH and showing any change for the worse. If it turns out that you have large amounts of residual urine, your doctor will probably suggest that you seek treatment to avoid chronic urinary tract infection or damage to your kidneys.

Urodynamic studies

Your urologist may want to do these studies if there is evidence that the primary problem is with the bladder, not the prostate. Cystometry is a way to measure bladder pressure and function. It's performed by threading a tiny catheter into the penis, through the urethra, and into the bladder to monitor pressure changes as the bladder is filled with water. Pressure-flow studies, using a small catheter, check bladder pressure as you urinate. (Note: Any time a catheter is inserted into the urethra, there is a slight risk of a urinary tract infection developing a few days later. Be sure to tell your doctor if you experience any subsequent fever or discomfort.) In these tests, pressures within the bladder are compared with the rate at which urine is flowing. This can determine whether men with high peak urinary flow rates have obstruction. Imagine squeezing water out of a balloon with a small opening. If you can squeeze hard enough, you can make the water flow, not just trickle. Similarly, some men with significant obstruction can produce reasonable urinary flow rates because they can generate high bladder pressure. These men will have relief of symptoms if their obstruction is treated. However, in some men, low urinary flow rates are caused by diseased bladders that can't produce much pressure. Relieving the obstruction in the prostate won't help these men, because the true problem is the bladder.

Cystoscopy

This test, usually performed in an outpatient setting, is uncomfortable but not painful; it is often used to assess the situation before an invasive procedure. A cystoscope is a slender, lighted tube (often flexible) that works like a periscope. It is inserted into the tip of the anesthetized penis and threaded through the urethra into the bladder. This allows the urologist to see the bladder, prostate, and urethra and spot anything abnormal—such as a stone, stricture, or enlargement. With cystoscopy, your doctor may also be able to see thickened

muscle bands in the bladder. Like rings in a tree trunk, these tell a story—that a condition of bladder obstruction has probably evolved over months or even years. (Note: As with insertion of a catheter into the urethra, this test carries a small risk of urinary tract infection. Some men also experience blood in the urine or a temporary inability to urinate. Be sure to tell your doctor if you develop a fever or feel any discomfort.) Cystoscopy can also be used to rule out other conditions, such as the presence of a bladder stone or bladder tumor.

How Is BPH Treated?

The first option is called watchful waiting, but it doesn't mean "do nothing." It means "wait and see." This is best chosen by men with mild symptoms—those who say they can live with it for the time being. The course of BPH is often hard to predict. Your symptoms could stay the same, improve, or get worse. Men who choose watchful waiting must make an extra effort to avoid any condition (such as constipation) or medication (including over-the-counter cold remedies) that could aggravate the problem. Beyond watchful waiting, there are two basic approaches—medical and surgical.

For men with moderate symptoms, the initial treatment should be medical. Here, again, there are several approaches: one class of drugs is called alpha-blockers. Remember the two kinds of tissue involved in BPH? One is glandular, made up of epithelial cells that secrete the prostate's fluids. The other is smooth muscle tissue—stromal cells that contract and squeeze this fluid into the urethra. As the glandular tissue enlarges and begins to narrow the urethra, the smooth muscle tissue tightens around it like a fist. In the normal prostate, there are two stromal cells for every epithelial cell. But in BPH, this ratio shifts. It's five to one, leading some scientists to describe BPH as a "stromal process." In other words, it's a smooth muscle problem. Alpha-blockers (the same drugs often used to treat high blood pressure) counteract this by causing this muscle tissue to relax. These drugs are helpful in men with small prostates and moderate symptoms.

For men who have a significantly enlarged prostate, it is reasonable to try another class of drugs called 5-alpha reductase inhibitors. These drugs block 5-alpha reductase, the chemical that

changes testosterone into dihydrotestosterone (DHT), the active form of male hormone within the prostate. This is important because, scientists have learned, the trouble in BPH starts *after* testosterone is converted by 5-alpha reductase into DHT. There are two drugs—Avodart (dutasteride) and Proscar (finasteride)—that block the activity of this enzyme. Both appear to work equally well in shrinking the prostate and in decreasing obstructive symptoms. They may also halt the progression of BPH. These drugs neatly manage to block a hormonal process without affecting a man's levels of testosterone (the hormone responsible for libido and sexual function). However, the problem with these drugs is that the effect is gradual and very slow. To some men, the pace of change is agonizingly slow, with significant improvement coming only after several months to a year of taking these medications. Also, these 5-alpha reductase inhibitors work well only if the prostate is enlarged (men with smaller-sized prostates can have BPH symptoms, too). If the prostate is small, a prostate-shrinking drug isn't going to solve the problem. And the relief of symptoms lasts only as long as a man takes these drugs.

Testing a Combined Approach

Could 5-alpha reductase inhibitors and alpha-blockers work better together? Is it possible that, for some men, two drugs are better than one? This idea was tested recently in a large, double-blind, placebo-controlled trial. Indeed, long-term use of both an alpha-blocker and a 5-alpha reductase inhibitor proved safe and reduced the risk of clinical progression—of symptoms getting worse—more than either treatment alone. Men taking both drugs had a lower risk of developing acute urinary retention (the inability to urinate) and were less likely to need invasive therapy. However, the combined therapy is not the miracle answer for every man with BPH. It's expensive, results are not immediate, and although the outcomes of this study were statistically significant, they amounted to only a few percentage points. Further, there is some concern that long-term use of 5-alpha reductase inhibitors may, by artificially lowering a man's PSA level, delay the diagnosis of prostate cancer until it has progressed into high-grade disease (this is discussed in chapter 4).

PROSTATE SYMPTOMS AND WHAT THEY MAY MEAN

Symptoms of urinary obstruction . . .

Weak flow

Hesitancy in starting urination; a need to push or strain to get urine to flow

Intermittent urinary stream (starts and stops several times)

Difficulty in stopping urination

Dribbling after urination

A sense of not being able to empty the bladder completely

Not being able to urinate at all

. . . could be caused by

Benign prostatic hyperplasia (BPH)

Urethral stricture

Prostate cancer

Medication

Neurogenic bladder (bladder trouble caused by a neurological problem, such as Parkinson's disease)

Symptoms of irritation . . .

Pain or burning during urination

Frequent urination, especially at night

A strong sense of urgency in urination; inability to postpone urination

Sleep disrupted by the need to urinate

Urgency incontinence

. . . could be caused by

Thickened bladder, caused by obstruction from BPH

Infection in the bladder or prostate

Bladder tumor

Bladder stone

Neurogenic bladder

Surgical Options

For men with severe symptoms or men who do not respond to medical therapy, there are many effective surgical options. The gold standard of these is a procedure called transurethral resection of the prostate (TUR or TURP), also described by patients (although it

makes urologists cringe) as the “Roto-Rooter” procedure. It is a proven, effective way to improve BPH symptoms quickly and keep them at bay for years. The TUR is performed under anesthesia (usually spinal anesthesia). Although it is a surgical procedure, the abdomen is not opened up. (Only in rare cases—usually in men with very large prostates—is it necessary to perform an open surgical procedure to remove the prostate tissue surrounding the urethra.) In a TUR, surgeons reach the prostate via the urethra by placing an instrument similar to a cystoscope through the penis. This instrument, called a resectoscope, shines a powerful light that allows surgeons to view the prostate as they chip away at excess tissue. The prostate’s core is removed in fragments by means of electrosurgical cautery or laser. These tissue chips collect in the bladder, and at the end of the procedure, they’re flushed out, collected, and sent to a pathologist, who examines them and checks for prostate cancer. Because the resectoscope is threaded through the urethra, no skin incision is needed. In recent years, several promising new techniques have been developed. They all channel a form of energy—heat, radio waves, ultrasound, microwaves, and laser—to kill cells. Energy waves are generated, focused, aimed, and fired at the overgrowth of BPH tissue. Some waves work like a shotgun, blasting holes in the prostate. Others are as sensitive as a scalpel, delicately nibbling away at BPH tissue until the urethra is free of obstruction.

To sum up: BPH is a common condition that affects most men. It is not cancerous, but it can mimic cancer. Today, there are many effective ways to treat it, and most of them have few side effects.

Prostatitis

Prostatitis hurts. This painful condition—an inflamed, swollen, and tender prostate—can be caused by a bacterial infection or by other factors. The major complaint in men with prostatitis is pain in the perineum (the area between the rectum and the testicles). They may also experience aches, pain in the joints or muscles and lower back, blood in the urine, pain or burning during urination, and painful ejaculation. In its own way, prostatitis is every bit as difficult and frustrating as BPH—not only because of the symptoms, but because there is not always an apparent cause. Prostatitis is a benign ailment—

it is not cancer, and it does not lead to cancer. It is not always curable, but it is almost always treatable.

The National Center for Health Statistics estimates that about 25 percent of all men who see a doctor for urological problems have symptoms of prostatitis. An estimated half of all men will experience some of these symptoms during their lifetime. Prostatitis is the most common cause of urinary tract infections in men; in fact, American men make about two million trips to the doctor each year seeking help for the symptoms of prostatitis or its siblings, “irritative prostatic conditions.”

What Causes It?

Sometimes we know, sometimes we don't. As one urologist commented in a review of this disorder, “Prostatitis is one of the most difficult clinical problems for men who suffer from it, as well as for the families of those men and their physicians. It is a particularly perplexing problem for urologists, who see many men with prostatitis and have difficulties with diagnosis and treatment.” Fewer than 8 percent of men with prostatitis actually have a urinary tract infection (symptoms caused by bacteria, which can be helped by antibiotics). What about the rest of these men? There are actually four conditions lumped under the umbrella of prostatitis. Each one has distinct characteristics and responds differently to treatment. That's why getting the right diagnosis is so important.

The two least common forms of prostatitis are caused by bacterial infection. Note: Although these are sometimes referred to as “infectious” prostatitis, neither form is contagious and neither form can be transmitted to your sex partner. Acute bacterial prostatitis is a severe, debilitating condition that hits with all the subtlety of a Mack truck. No mystery here; men who have it know something is wrong, and they require immediate treatment. In addition to the symptoms described above, acute bacterial prostatitis is usually distinguished by chills and fever and extreme pain. It's difficult for a man to be stoic and try to “ride out” this condition. It's also a big mistake: if not treated, acute bacterial prostatitis can lead to more serious problems such as urinary retention (the inability to urinate), a life-threatening infection in the bloodstream (this is called sepsis), and development of an abscess (an accumulation of pus under pressure, like a pimple) within the prostate.

INTERNATIONAL PROSTATE SYMPTOM SCORE (IPSS)

	Not at all	Less than 1 time in 5	Less than half the time	About half the time	More than half the time	Almost always	Your score
1. Incomplete emptying Over the past month, how often have you had a sensation of not emptying your bladder completely after you finished urinating?	0	1	2	3	4	5	
2. Frequency Over the past month, how often have you had to urinate again less than two hours after you finished urinating?	0	1	2	3	4	5	
3. Intermittency Over the past month, how often have you found you stopped and started again several times when you urinated?	0	1	2	3	4	5	
4. Urgency Over the past month, how often have you found it difficult to postpone urination?	0	1	2	3	4	5	
5. Weak stream Over the past month, how often have you had a weak urinary stream?	0	1	2	3	4	5	
6. Straining Over the past month, how often have you had to push or strain to begin urination?	0	1	2	3	4	5	

	None	1 time	2 times	3 times	4 times	5 times or more
7. Nocturia Over the past month, how many times did you most typically get up to urinate from the time you went to bed at night until the time you got up in the morning?	0	1	2	3	4	5

Total IPSS Score

	Delighted	Pleased	Mostly satisfied	Mixed; about equally satisfied and dissatisfied	Mostly dissatisfied	Unhappy	Terrible
Quality of Life Due to Urinary Symptoms	0	1	2	3	4	5	6

If you were to spend the rest of your life with your urinary condition just the way it is now, how would you feel about that?

If your total score is:

- 0 to 7** your symptoms are considered mild
- 8 to 19** your symptoms are considered moderate
- 20 to 35** your symptoms are severe

Acute bacterial prostatitis is really an acute urinary tract infection (UTI). Fortunately, because the inflammation is so intense, this enables certain antibiotics—which normally wouldn't be able to penetrate the blood-prostate barrier, a shield designed to protect prostatic fluid—to reach the prostate. (Usually, in keeping out bad things like infection, this barrier also blocks helpful agents.) Acute bacterial prostatitis responds dramatically to antibiotics. However, many men are undermedicated—they either don't think they need (and therefore don't take) or aren't prescribed enough antibiotics to hit the infection hard and knock it out for good. A week to ten days of treatment may ease all signs of infection, and a man may even feel back to normal within a few days. But doctors have learned the hard way—from watching acute bacterial prostatitis return as a chronic infection—that it takes much longer, about six weeks of antibiotics, to get rid of the infection. In this sense, bacterial prostatitis is a lot like another stealthy infection, tuberculosis. The prostate is like a sponge, and if any trace of bacteria is not obliterated right away, acute bacterial prostatitis becomes much more difficult to cure. Eradicating acute bacterial prostatitis the first time around by relentless treatment with antibiotics is the best way to avoid developing chronic bacterial prostatitis.

Chronic bacterial prostatitis is also caused by bacteria and is also treated with antibiotics. It can be a recurring illness, coming back periodically for years after an initial episode of acute bacterial prostatitis. Its symptoms are usually milder versions of those seen in the acute form. Here, too, treatment with antibiotics should continue for six weeks. In many cases, the infection goes away every time with treatment; if, a few months later, it returns, it will vanish again after another round of antibiotics.

Both acute and chronic bacterial prostatitis are associated with UTIs, positive urine cultures that pinpoint the bacteria's location to the prostate, and the presence of inflammatory cells in prostatic secretions. (The hallmark of chronic bacterial prostatitis is that, when the infection returns, it's caused by the same type of bacteria that caused the previous infection.)

Chronic bacterial prostatitis, in fact, is so closely tied to UTIs that many doctors believe that if you don't have a UTI, and if you've never had one, you probably don't have chronic bacterial prostatitis. One explanation for persistent bacterial prostatitis may be lin-

gering infection in tiny stones, called calculi, in the prostate. Prostatic calculi (the prostate's version of gallstones or kidney stones) are harmless and very common; about 75 percent of middle-aged men and 100 percent of elderly men have them.

The next category is called chronic prostatitis/chronic pelvic pain syndrome, and the cause here is a diagnostic puzzler: Nobody knows what causes the two forms of prostatitis in this group (which used to be named by what it was not, nonbacterial prostatitis), and antibiotics don't help at all. Men with chronic prostatitis/chronic pelvic pain syndrome may have many of the same symptoms as those with chronic bacterial prostatitis. However, in some men, the prostate may not even be the problem. The pain and other symptoms may be a result of spasms elsewhere in the pelvis, rectum, or lower back. This category has two subgroups: inflammatory and noninflammatory, based on whether any white blood cells (also called inflammatory cells) can be found in the prostatic fluid.

Treatment here is largely symptomatic. Your doctor may prescribe one or several medications, including antibiotics, alpha-blockers, 5-alpha reductase inhibitors, anti-inflammatory agents, and Elmiron (pentosan polysulfate sodium). All of these have been shown to help some men with these forms of prostatitis; the problem is determining which men will be helped by which drug or drugs. This may take a while—and plenty of patience—for you and your doctor to figure out. This is the “art” of medicine—your doctor thinking creatively, juggling and fine-tuning various treatments to find the best ones for you. Some doctors recommend anti-inflammatory drugs and sitz baths to ease muscle discomfort and make urination easier, and many men have been helped by changing their diet. Some foods—particularly spicy dishes, red wine, and caffeine—seem to make symptoms worse.

Then there's the mysterious “bonus” category known as asymptomatic inflammatory prostatitis. This condition produces no symptoms and is usually found by chance during a biopsy or when prostate tissue is removed for other reasons (for example, surgery for BPH or cancer). If it produces no symptoms, is this inflammation something we should even worry about? Maybe. We're still learning about this form of prostatitis, and, although it is not cancer, it may be linked with the formation of cancer. In other words, whatever

causes the inflammation may eventually cause cancer as well. (This will be discussed at length in the next chapter.)

How Do You Know If You Have It?

As described above, acute bacterial prostatitis leaves little room for guesswork. Other forms of prostatitis, however, cause milder symptoms (and asymptomatic inflammatory prostatitis doesn't cause any symptoms at all) that may not immediately suggest that the prostate is to blame. The constellation of symptoms of prostatitis includes pain in the perineum (the area between the rectum and testicles), testicles, the tip of the penis, the lower legs and back, and during or after ejaculation, as well as blood in the urine, the need to urinate frequently, and incomplete emptying of the bladder.

You are at higher risk of developing prostatitis if you recently have had a urinary catheter or other medical instrument inserted into your penis; engaged in rectal intercourse or oral sex; have had a recent bladder infection; or have other urinary problems, including BPH or an abnormal urinary tract. Stress also seems to play a role in prostatitis. (Note: If you have undergone recent surgery or any other surgical procedure, be sure to tell your doctor.)

How Is Prostatitis Treated?

The easiest to treat is the most dramatic form, acute bacterial prostatitis. (The most likely cause of infection is *E. coli*, a form of bacteria that's common in the colon.) This can be cured with a course of antibiotics—usually one of a class called fluoroquinolones—that lasts for six weeks. Men with chronic bacterial prostatitis are helped by low maintenance doses of antibiotics. This is called chronic suppressive therapy and, as its name suggests, it is designed to *prevent* new UTIs from developing, instead of treating them after the fact. Men who do not have infections may be helped by drugs such as alpha-blockers (often used to treat high blood pressure; described above in the BPH section), antidepressants, and antispasmodics (drugs that help calm muscle spasms). The treatment for most prostatitis is often trial and error, and it helps if men and their doctors can work together—with much patience—to come up with the right

plan. New evidence suggests that some nonbacterial prostatitis may actually be caused by an autoimmune condition that mimics the symptoms of prostatitis. This exciting new research may help us find new ways to manage the condition.

Finally, many men with prostatitis have found that their symptoms improve when they change their diet—eating a good balance of fruits and vegetables; avoiding spicy foods, alcohol, caffeine, and soft drinks that contain saccharin; and drinking enough water to keep urine running clear—and their lifestyle. A thirty-minute hot bath or sitz bath, twice a day, can relieve pain and make it easier to urinate. Getting daily exercise (but not riding a bike or an exercise bike, which can irritate symptoms) and resuming normal sexual activity may also be helpful.