

A high PSA level in a man with suspected prostatitis

It's just due to inflammation, right?



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Most men who present with a lower urinary tract infection will have an elevated PSA level at the time. Although this elevation will usually be due to inflammation, it is important to consider other possible causes for the patient's symptoms and PSA level.

Case scenario

An active 62-year-old barrister presented as a new patient with increasingly bothersome lower urinary tract symptoms (LUTS). These consisted mainly of urgency and a weak stream, and had been worsening over the past few months. He had attended another doctor recently, who had ordered a prostate specific antigen (PSA) test (54.5 ng/mL) and a midstream urine (MSU) test (normal) and diagnosed prostatitis. The patient was treated with a course of antibiotics, which did not have any obvious effect on the symptoms.

Is there anything in this scenario that worries you?

Commentary

This patient's PSA level is clearly abnormally elevated, which is quite common in men with acute prostatitis or a severe urinary tract infection (UTI), and this man certainly has some symptoms that could be due to infection. However, his MSU test did not show any evidence of inflammation, let alone infection, and antibiotic treatment did not seem to help. Therefore, it is important to consider other causes of a high PSA level, and to tease out the correct diagnosis.

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Differential diagnosis

In a man who has not had any recent interference with his lower urinary tract (such as a catheter or cystoscopy), there are three main reasons for a high PSA level:

- benign prostatic hyperplasia (BPH)
- prostate cancer
- lower urinary tract inflammation caused, for example, by acute prostatitis.

For this patient, BPH can almost certainly be excluded because only an extremely large prostate could produce such a high PSA level in the absence of other pathology in the gland. That leaves prostate cancer and prostatitis, or both.

History

It is often possible to differentiate prostate cancer from acute prostatitis on history alone. When diagnosed early, prostate cancer is usually asymptomatic. Any LUTS in a patient with prostate cancer are actually more likely to be due to coexisting BPH, as the two conditions occur in the same age group. Only in patients with advanced prostate cancer is the cancer itself likely to be the cause of LUTS. Men with prostate cancer may also have a family history of this disease.

Features of acute prostatitis include urgency and a weak stream, which are seen in this case. Sometimes the stream is so weak that it is difficult to void at all. However, there is usually dysuria as well as other typical symptoms of infection, such as fever and even rigors. Men with prostatitis will also often complain of deep pelvic pain.

Perhaps the easiest way to differentiate prostate cancer from prostatitis is by referring to the patient's PSA history. On its own, a single PSA measurement of 54.5 ng/mL does not discriminate, but this patient's previous PSA readings reveal an obvious increase over time, with measurements of 4.3, 5.5, 8.2 and 20 ng/mL over the past one, two, three and four years. This pattern is highly suggestive of progressing prostate cancer that has not been suspected or referred for urological assessment.

A PSA level as high as 54.5 ng/mL in the setting of a normal

MSU test result also strongly suggests prostate cancer. In this case, the severe LUTS led to diagnostic confusion.

Examination

The other test used to differentiate between prostate cancer and prostatitis is digital rectal examination (DRE). In acute prostatitis, the gland may be exquisitely tender. With the current widespread use of PSA testing, most prostate cancers are not palpable on DRE. However, a prostate cancer causing a PSA level of 54.5 ng/mL will be advanced and very likely to be felt.

Outcome

A repeat PSA test was ordered for this patient, which showed a further increase to 74.2 ng/mL, and he was referred immediately to a urologist. A DRE revealed the classic hard nodular gland of advanced prostate cancer.

The patient underwent a transperineal biopsy, which showed extensive prostate cancer (Gleason score: 4+5=9), and a bone scan, which revealed widespread metastases. Unfortunately, he had to be advised that his disease was incurable. He was started on hormone therapy and offered participation in a clinical trial of a new therapeutic agent.

The outcome in this case demonstrates the importance of early diagnosis of prostate cancer. If a patient is correctly diagnosed when his PSA level first becomes abnormal then curative treatment is more likely to be possible. This case also demonstrates the importance of performing a DRE and interpreting the findings correctly.

Summary

Most men with a UTI, including prostatitis, have an abnormally elevated PSA level at the time. In the vast majority of cases, this elevation is due to inflammation, but it is important to rule out the presence of prostate cancer as well. In a small number of cases, there may be no prostatitis at all, as this case demonstrates, with the high PSA level being solely due to prostate cancer.

The clinical features on history and examination discussed above can help discern a diagnosis of prostate cancer, but often the most telling information is the patient's previous PSA levels. If serial PSA information is not available, it is important to ensure that a high PSA level thought to be due to prostatitis is seen to normalise by ordering a repeat test a few weeks after treatment. When there is any doubt, the patient should be referred to a urologist without hesitation.

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Further reading

Prostate Cancer Foundation of Australia and Cancer Council Australia PSA Testing Guidelines Expert Advisory Panel. Draft clinical practice guidelines PSA testing and early management of test-detected prostate cancer. Sydney: Cancer Council Australia. Available online at: http://wiki.cancer.org.au/australia/Guidelines:PSA_Testing (accessed May 2015).

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