

## SIGNIFICANCE OF THE PALPABLE PROSTATIC NODULE

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The nodule as herein defined is a grossly circumscribed area of palpable induration confined to a portion of one prostatic lobe. Contrary to prevailing opinion, almost 50% of such nodules (fig. 1) are found to be malignant on microscopic examination of the tissue. In general, the malignant nodule has no palpable characteristics that can be relied upon to distinguish it from the benign.

From 1905 to 1955, 211 localized nodules of markedly abnormal induration were exposed perineally and subjected to accurate histological examination at the Johns Hopkins Hospital. In 72 cases operation was done between 1905 and 1945 and in 139 between 1945 and 1955. The fact that the number of cases seen within the last 10 years was nearly double the number during the preceding 40 years is evidence that the family physician is becoming increasingly aware of prostatic cancer and the benefit afforded by radical perineal prostatectomy in early cases.<sup>1</sup>

Of the total series of 211 palpable nodules, 108 were benign and 103 malignant. The great majority were found in men between 50 and 70 years of age. In the benign group the youngest patient was 40 years of age and in the malignant group, 43. In these two groups the recorded gross characteristics as detected by digital rectal examination were strikingly similar. Benign and malignant nodules occupied the same areas within the prostate gland, with the exception of the median furrow or groove: 30 benign and 41 malignant nodules were found in the apex of a lobe, 25 benign and 32 malignant in the center of a lobe, 39 benign and 30 malignant in the base of a lobe, and 7 benign and no malignant in the median furrow; the location of 7 benign nodules was not stated. The nodules were almost equally elevated or not elevated, smooth or irregular. Thirty-seven benign and 36 malignant nodules were elevated and 7 benign and 4 malignant not elevated; the prominence of 64 benign and 63 malignant nodules was not stated. Twenty-nine benign and 22 malignant nodules were smooth and 7 benign and 10 malignant irregular; the condition of the surface of 72 benign and 71 malignant nodules was not stated. In only three cases was the presence of a sharp edge mentioned, and in two of these the nodule was benign. Stony induration, usually considered almost pathognomonic of malignancy, was present in 75 benign nodules, and in none of these cases were calculi demonstrable by roentgenograms. When a calculus could be demonstrated preoperatively, the case was excluded from the series (fig. 2). Stony hard induration was present in 57 malignant nodules and less than stony hard

• *Localized, abnormally indurated nodules found in the prostate gland were studied histologically in 211 cases; 108 were classified as benign and 103 as malignant. These results were compared with those of the preoperative digital rectal examinations to see whether the character of the nodule could be predicted from its location and consistency.*

*Benign and malignant nodules differed little as judged by palpation. They were almost equally elevated or not elevated, smooth or irregular. Stony induration was present in 75 benign nodules. There was no great difference as to location within lobes, except that seven nodules palpated in the median furrow were all reported as benign by the pathologist.*

*In the group of 103 malignant nodules, careful rectal examination had failed in 74 cases to reveal the full extent of the growth, and in 26 cases the tumor cells were found to have invaded the tissues around the seminal vesicles.*

induration in 31 benign and 4 malignant nodules; the amount of induration was not stated for 2 benign and 42 malignant nodules.

The pathological nature of the 108 benign nodules was as follows: benign prostatic hyperplasia, 52; hyperplasia with prostatitis, 24; prostatitis alone, 13; calculi not roentgenographically demonstrable, 6; tuberculosis, 5; normal prostate, 3; infarct, 2; granulomatous prostatitis, 2; and squamous metaplasia, one. In only one of these 108 cases was carcinoma known to have developed some years later, but it was unrelated to the original nodule. The advantage of obtaining exposure of the entire posterior surface of the prostate by the perineal approach lies in the accuracy with which the area under suspicion can be identified and excised for biopsy.

In the group of 103 grossly localized malignant nodules, histological examination of each specimen removed by radical perineal prostatectomy showed that the extent of the cancer had been underestimated to some degree in 74 cases (72%), even after careful rectal palpation. In 26 of these cases, or 25% of the malignant group, tumor cells had unexpectedly invaded the tissues around the seminal vesicles. These figures emphasize the danger of "watchful waiting" in cases of malignancy before undertaking curative surgery.

Perivesicular infiltration by cancer cells was found to be of serious prognostic significance. From 1905 to 1945, 40 patients with localized malignant nodules survived radical perineal prostatectomy and received no precautionary endocrine treatment. In 14 cases the seminal vesicles were involved. Ten of these patients died with cancer; one is still living with cancer. Two died in less than 10 years without cancer, and only one has lived longer than 10 years without recurrence or metas-

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1. Jewett, H. J.: Radical Perineal Prostatectomy for Carcinoma: An Analysis of Cases at the Johns Hopkins Hospital, 1904-1954, J. A. M. A. 156: 1039-1041 (Nov. 13) 1954.

tasis. In 26 of these 40 cases the seminal vesicles were found not to be involved on histological study. Four of these patients died with cancer; one is still living with cancer and assisted with endocrine therapy. Eight died in less than 10 years without cancer, and 13 (50%) lived 10 years or longer without evidence of malignant disease. These figures indicate that microscopic infiltration of the perivesicular tissues markedly reduces the chances for cure. The gross size of the malignant nodule is of less prognostic significance than its histological confinement within the prostate gland.

In the total group of 103 malignant nodules, 77 cases (75%) showed no microscopic evidence of involvement of the seminal vesicles. In this group the nodule was grossly confined to the apex in 22, to the base in 10, and to the center of one lobe in 9. In the remaining 36 cases the position of the nodule was not defined, and it was merely said to be "localized." Definite conclusions therefore cannot be drawn concerning the prognostic significance of the position of the nodule, but it seems obvious that the greater the distance from the nodule to the seminal vesicles the less likely the latter are to be involved.

In the series herein reported, physicians detected 57% more localized malignant nodules during the last decade than during the preceding four decades. In spite of this encouraging trend, the Federal Security Agency, U. S. Public Health Service, reported in 1952 that the incidence of prostatic cancer had increased 38% between 1938 and 1948.<sup>2</sup> Their survey of cancer illness in men also showed that the mortality rate from prostatic cancer was exceeded only by that from cancer of the stomach and lung. Since prostatic cancer is within easy reach of the examining finger and generally commences as a small,

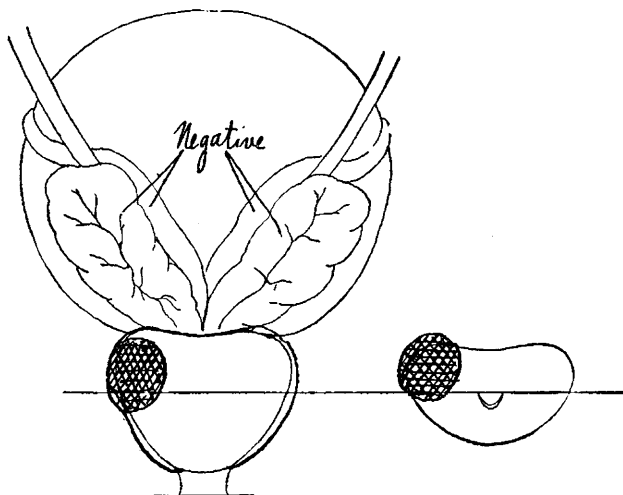


Fig. 1.—Findings on rectal palpation. Nodule of adenocarcinoma localized to base of left lateral lobe of prostate. Radical perineal prostatectomy done Nov. 18, 1935. Patient alive without evidence of recurrence or metastasis and with perfect urinary control 19½ years later.

operable cancer, the responsibility of the general practitioner for the early detection of this disease, in a curable stage, is plainly evident.

### Summary and Conclusions

A palpable nodule of abnormal induration localized to a portion of the prostate gland is malignant in about 50% of men over 40 years of age in whom the roentgenogram

fails to disclose a calculus. Early detection, through routine annual rectal palpation, becomes the responsibility of the family physician. There are no gross characteristics that are consistently reliable for distinguishing nodules that are benign from those that are malignant. Exposure

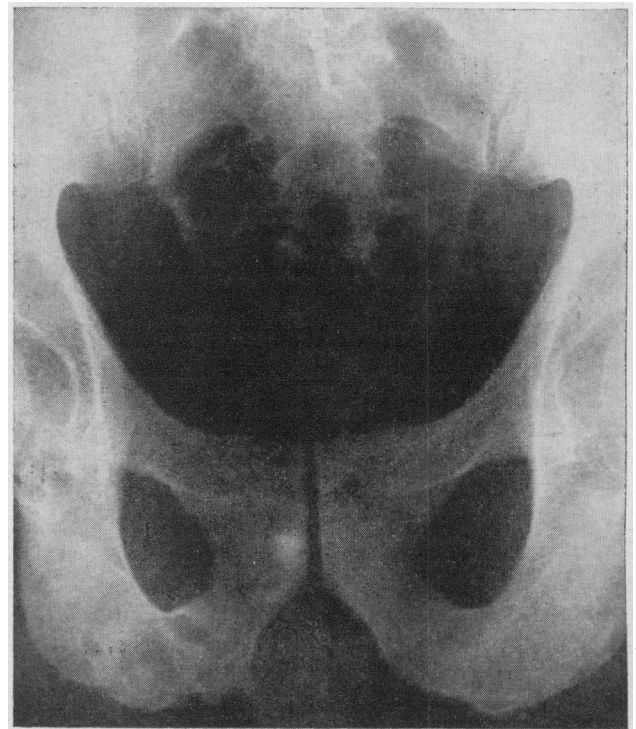


Fig. 2.—Plain roentgenogram of prostatic area showing compact calculus lying behind right pubis. Rectal palpation had disclosed hard localized nodule in right lobe of prostate.

of the entire posterior surface of the prostate gland by the perineal approach affords the greatest accuracy in identification and excision of the indurated portion for histological examination. It also enables the operator to avoid spillage and implantation of cancer cells and permits a thorough coagulation of the area from which the biopsy specimen is taken. The results of endocrine therapy for indurated prostatic nodules cannot be evaluated without prior histological proof of malignant disease in the patient, inasmuch as approximately 50% of these lesions are benign.

When the nodule is malignant, infiltration of the tissues about the seminal vesicles markedly reduces the prospect for cure by radical prostatectomy. The greater the distance between the nodule and the seminal vesicles, the less likely they are to be involved. The size of the palpable malignant nodule is of less prognostic significance than the histological localization of the neoplasm to the prostate gland itself, in which case the 10-year survival rate is 50% after radical perineal prostatectomy. This survival rate figure of 50% has been found to compare favorably with the expected survivorship of 53% for men of the same age group in the general population.

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2. Cutter, S. J., and Marcus, S. C.: Cancer Illness Among Residents of Philadelphia, Pa., 1948, Cancer Morbidity Series, no. 10, Federal Security Agency, U. S. Public Health Service, 1952.