

GENERAL STAFF MEETING  
UNIVERSITY HOSPITALS  
UNIVERSITY OF MINNESOTA

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I. CASE REPORTCARCINOMA OF PROSTATE (URINARY OBSTRUCTION, LOCAL EXTENSION).

Path. Pearson.

The case is that of a white, male farmer, 78 years of age, admitted to the University Hospitals 9-4-30 and discharged 9-22-31 (18 days); readmitted 1-25-31 and died 1-27-31 (2 days).

1921 - Nocturia three times.

9-9-29 - Slight precordial pain and dyspnea on exertion.

Obstructed

3- -30 - Urinary retention. Retention catheter inserted which he used for six months. After this was able to pass urine normally. Lost 39 lbs. during next seven months.

Pain

9-1-30 - Urinary retention returned accompanied by sharp pains in bladder. Could not insert catheter. Urine was drawn suprapubically by needle. He was told that he had a stricture at this time.

Hospital

9-4-30 - Physical examination was negative except for senile changes. Arcus senilis present. Chest and heart negative. Blood pressure 130/80, pulse 104. Prostate enlarged, grade ii, very hard and irregular. Diagnosis: Carcinoma of prostate with acute retention.

Laboratory

Urine - 1.012, numerous rbc's. Blood - Hb. 85%, wbc's 6,900, pmn's 60%, L 36%, E 3%, M 1%. Blood urea nitrogen 46.7 mg. Catheterized, 500 cc. urine obtained. Pulse 104. Temperature 100.2.

9-5-30 - P.S.P. 68% in two hours. Wassermann - State Board and Larson - negative.

9-7-30 - Catheterized, 150 cc. urine obtained.

Cystotomy

9-8-30 - Morphine Sulphate gr. 1/6. Atropine sulphate gr. 1/150. Under 2 cc. of spinocain, a short, low, medium suprapubic incision was made. A trocar was inserted into the bladder and a #24 catheter passed through the trocar which was then withdrawn. Hypodermoclysis, 2000 cc. of saline given.

9-9-30 --9-15-30 - Patient feels good. Up in chair daily. Dressings daily. Stitches removed on the 7th day. Pulse and temperature normal. Mineral oil two times daily, 1 oz.

Radon

9-15-30 - Morphine Sulphate gr. 1/6. Anesthesia 80 cc. 1% novocain with 5 drops of adrenalin in the sacral canal. The prostate which was previously enlarged grade iii hard, nodular, and fixed is now enlarged, grade i. The hard nodule persists but the fixation has disappeared. 8 gold seeds, containing 1 mc. of radium emanation, were implanted into the prostate gland by means of needles inserted through the perineum. A total of 1056 mch. given.

Diarrhoea

9-18-30 - Complains of diarrhea. Mineral oil 1 oz. two times daily. Bismuth subnitrate gr. xxx every 4 hours. Tincture of opii M. x. every 4 hours times 4.

9-19-30 - Mineral oil 1 oz., two times daily. Bismuth gr. xx every 4 hours. Tincture of opii M. x every 4 hours times 4. Deep x-ray therapy given.

Home

9-22-30 - Discharged. Daily urine examinations were negative.

Back

1-25-31 - Readmitted to University Hospitals. Patient is very feeble and complains of continuous suprapubic drainages. General health poor. Abdomen is thin and excoriated. Left hydrocele is present. The prostate is enlarged, grade iv, hard, nodular, fixed with extension higher up than one can reach. Morphine Sulphate gr. 1/4.

1-26-31 - Suprapubic tube reinserted, opium suppository.

Laboratory

Blood - Hb. 80%, wbc's 20,000, Pmn's 88, L 11, M 1. Blood urea nitrogen 22.4. Blood sugar 110 mgs. Hypodermoclysis, 2000 cc. saline. Bladder lavated with boric acid.

X-ray

Showed no evidence of metastasis. Radium implants in pelvis. Arthritis

of lower lumbar spine.

### Exitus

1-27-31 - 6:00 A.M. - patient stuporous.  
7:46 A.M. - responds slowly. Pulse fairly strong. Caffeine sodium benzoate gr. 7-1/2. Pulse weak. 8:05 A.M. - patient expired.

### Autopsy

The body is that of a well-developed, poorly nourished, white male measuring about 170 cm. in length and weighing approximately 100 lbs. The body is embalmed. There is a healed suprapubic wound present in the lower portion of the abdomen which has a draining sinus about 3 cm. in length.

Only a partial autopsy is permitted.

The Peritoneal Cavity contains no fluid.

The Spleen seems to be of normal size and weight. It is removed and the capsule found to be grayish in color and wrinkled, and the pulp quite soft and red.

The Kidneys are removed for inspection and seem to be of normal size. The capsules strip easily and reveal smooth surfaces. The pelves of the kidneys seem to be of normal size. The ureters do not seem to be distended.

The main changes are in the prostate which is removed en masse. The bladder is found to be very small and the wall thickened and contracted. A hemorrhagic type of cystitis is present. The mass is very markedly adherent to its surrounding pelvic structures and when removed it is found that there are pockets of pus in the pelvis, in the region of the bladder. Upon removal of the prostate, it is found to be somewhat enlarged and very hard.

### Diagnoses

1. Carcinoma of prostate (local extension).
2. Hemorrhagic cystitis.
3. Suprapubic cystotomy.
4. Recent operative suprapubic wound.
5. Cloudy swelling of kidneys.
6. Acute splenitis.
7. Marked emaciation.
8. Local abscesses in pelvis.

## II. CASE REPORT

### CARCINOMA OF PROSTATE (URINARY OBSTRUCTION, PAINFUL BACK AND LEGS.

Path. Henrikson.

The case is that of a white adult male, 76, admitted to University Hospitals 4-22-31 and died 5-24-31 (32 days).

1870 - Typhoid.

1897 - Malaria.

### First Symptoms

1928 - Nocturia and frequency began.

### Beginning Obstruction

Spring 1930 - Slow stream which gradually changed to dribbling.

### Pain in Bones

Feb. 1931 - Frequency and nocturia every 15 minutes. Burning on urination. Had to strain hard to pass any urine. Painful. Back became stiff.

Mar. 1931 - Legs became stiff and painful, especially on exertion. Crutches required.

### First seen ( 2 years later)

4-22-31 - Admitted to University Hospitals. Physical examination: White, adult male about 75 years of age, who lies with legs flexed and held immobile. Movement of legs and back seem to pain him. Eyes - bilateral arcus senilis. Heart and lungs - negative. Ears - hearing poor. Abdomen - marked tenderness in both lower quadrants and in the midabdomen over the symphysis. Extremities - legs are stiff and there is a pain on motion. There is tenderness over both kidney regions on deep percussion. Rectal - prostate - size of small baseball, firm but not especially tender. Reflexes - normal. Impression: 1. Carcinoma of prostate with metastases to pelvis. 2. Hydronephrosis.

### Laboratory

Urine - slight albumen, few rbc's and few wbc's. Blood - Hb. 76, rbc's 3,880,000, wbc's 9,500, P 66, L 32 and M 2.

4-23-31 - No residual urine on catheterization. Total PSP - 10%. NFN-28. Blood Wasserman - negative.

4-24-31 - X-ray of pelvis and lumbar spine: Conclusions: Destruction of symphysis pubis secondary to prostatic malignancy with possible osteoblastic metastasis to fifth lumbar vertebra.

4-25-31 - Dilution and concentration urine test:

Time	Specific Gravity
8 A.M.	Q.N.S.
9 A.M.	1.012
10 A.M.	Q.N.S.
11 A.M.	1.012
2 P.M.	1.010
3 P.M.	1.014
6 P.M.	1.014

Does not feel very well.

4-27-31 - 5 cc. of residual urine on catheterization. PSP - 10%. X-ray K.U.B. - The Kidney and psoas shadows are fairly well made out and appear normal. Examination for stone is unsatisfactory. Mineral oil oz. i t.i.d.

#### Radon in tumor

4-29-31 - 2773 mch. hours of radium emanation inserted by needle into bed of prostate gland through peritoneum. (Under spinocain anesthesia).

4-30-31 - 40 cc. residual urine obtained by catheterization. Complains of pain in perineum and over bladder. Morphine sulphate gr. 1/4 (H) and opium suppositories gr. ~~ss~~ given occasionally for pain.

#### Obstructed

5-1-31 - Pulse 120. Temperature 101. Suprapubic cystotomy. Bladder reached almost to umbilicus and was filled with cloudy, foul-smelling urine. A #30 mushroom catheter was inserted. Returned from operating room in good condition. 4000 cc. fluid given intravenously and 2000 cc. by hypodermoclysis.

5-2-31 - Fairly good day. Complains of slight abdominal pain and nausea.

5-3-31 - Temperature normal. Pulse 90. Urinary output 900 D.

#### Deep Therapy

5-4-31 - Temperature 97.6 to 100.2. Pulse 100. NPN - 56. To deep x-ray for therapy - 100% to anterior and posterior pelvis in 4 treatments (8 days).

5-7-31 - NPN - 21. Still getting fluids intravenously and by hypodermoclysis.

#### Tube Difficulty

5-9-31 - Patient's suprapubic tube came out while in bed. Impossible to replace it by ordinary means. Given hyoscine and morphine and taken to operating room. **Bladder was distended by means of urethral catheter, and a trochar was inserted through the old cystotomy wound**

into the bladder. A #22 catheter was put in the bladder through the trochar. Trochar was withdrawn. Catheter was then fixed in place with adhesive and linen.

#### Deep Therapy Stopped

5-11-31 - Bladder is being irrigated with acriflavine 1 to 1000 h.i.d. Catheter changed frequently to promote drainage from suprapubic cystotomy wound. Deep x-ray therapy discontinued after having had 4 treatments. Tincture digitalis 3 cc. given twice. Pulse 110. Temperature 97.2.

5-13-31 - Hb. 58%, wbc's 10,200.

#### Worse

5-15-31 - NPN - 31. Condition worse. Very drowsy. Takes fluids well. Does not complain. Temperature 99. Pulse 104.

5-22-31 - Stuporous at times. Temperature 99 to 100.8. Pulse 110 to 122.

5-23-31 - Much worse. Does not respond. Irrigated with acriflavine. There are a few moist rales at both bases, posteriorly. Fluid intake is kept at about 2,500 cc., and fluid output is 1,500 cc. daily. Pressure sore is forming over buttock. Sanguineous drainage from suprapubic incision. Respirations slightly labored. Usual post-operative hyperventilation has been carried out t.i.d.

#### Exitus

5-24-31 - Slept well. Does not seem so stuporous but does not take fluids orally. 10 A.M. - very stuporous; breathing labored; condition much worse. 4:30 P.M. - does not respond; has Cheyne-Stokes respirations. 6 P.M. - pronounced dead.

#### Autopsy

The body is that of a white adult male, 155 cm. long, weighing approximately 90#. Markedly emaciated but fairly well-developed. Rigor present. Hypostasis is purplish and posterior. Edematous swelling of right thigh, probably due to hypodermoclysis. No cyanosis or jaundice. Pupils equal and regular, 4 mm. in diameter. Functure wounds on antero-medial surfaces of both thighs and in antecubital spaces. Tattoo markings on both forearms. A few carious teeth are present in upper gum. Most of teeth are absent. Marked

**kyphosis** of thoracic spine.

The fat on the anterior abdominal wall is less than .5 cm. in thickness. A thick, yellowish-green, purulent-like fluid exudes upward from an operative incision above the symphysis (on pressure around it). There is an opening near the central portions, 1.5 cm. in diameter. The right diaphragm is at the 4th rib and the left at the 4th interspace. The Appendix is bound down in a mass of intestines adherent to the portion of the peritoneum over the bladder (in close relationship to the suprapubic cystotomy opening.) The lungs are adherent to the lateral portions of thorax by firm adhesions.

The Pericardial Sac contains 10 cc. of straw-colored fluid.

The Heart weighs 290 Gm. The foramen ovale is closed. The lumina of the coronary arteries are narrow due to thickening of the wall of the vessels. There are no scars in walls of ventricles. Leaflets of aortic valve are fairly rigid due to sclerosis. There is a yellowish plaque below the mitral leaflet of aortic valve. The Root of the Aorta is thickened by yellowish, slightly elevated plaques which practically replace the normal surface of aorta.

The Left Lung weighs 260 Gm., the Right 340 Gm. There are firm, contracted, grayish, semi-translucent plaques at apex and on lateral surface of upper lobe of left lung. Radiating wrinkles pass outward from scars. On pressure over them, one gains the impression of hard nodules, 6 x 3 mm. in diameter, in each lesion. The pleural surfaces are smooth except for the adhesions which have been torn away from them. They are gray to pink, dappled with black anthracotic macules. On surfaces made by cutting, there are no signs of bronchopneumonia. There is very little sign of congestion at both bases. Both lungs contain air throughout.

The Spleen weighs 100 Gm. The surface is light gray and contains many slightly elevated plaques, 2 to 4 mm. in diameter. On surfaces made by cutting, the trabeculae are prominent. The parenchyma is a pale purple-red. The Malpighian corpuscles cannot be made out.

The Liver weighs 1300 Gm. and on the lateral surface of right lobe, there is a small, slightly depressed, blackish-purple tumor extending downward into the substance of the liver for 6 mm. Surfaces made by cutting reveal tiny, pur-

plish-red areas, 1 to 2 mm. in diameter, dappling a lighter yellowish-black background.

The Gall-Bladder is about 3 times normal size and is filled with a light, yellow-brown fluid. On pressure over the fundus, this fluid passes downward through the ducts.

The lower coils of ileum, sigmoid flexure of colon, appendix and part of the cecum are bound to peritoneal surface of bladder. Light, yellowish-green thick pus is found beneath the cecum, appendix, ileum, sigmoid and down into true pelvis. The specimen is removed intact and the Bladder is found to be contracted so that it now holds only about one ounce. A fistula connects upper portion with a sinus through abdominal wall.

The substance of Prostate is very hard and is found to contain numerous, small, gold rods 0.5 mm. in diameter and 4 mm. long. It is very firm, especially laterally, and is adherent to tissue over the pubic bone so that it is torn away with some difficulty. There is very little other sign of extension, posteriorly and anteriorly. The mucosa of the rectum is intact.

The Pancreas weighs 130 Gm. and shows no changes.

The Adrenals show postmortem autolysis of medulla.

The Left Kidney weighs 150 Gm., the Right 140 Gm. There is marked bilateral hydronephrosis and hydro-ureter. The capsules strip easily exposing multiple, slightly elevated, whitish nodules 2 to 5 mm. in diameter. On surfaces made by cutting, these are seen to be connected to the calyces by whitish streaks, 2 to 4 mm. in diameter, passing upwards parallel to the cortical striations. The calyces and pelves are markedly dilated and their lining shows thickened, yellowish-green patches. The left kidney and pelvis is filled with a yellowish-brown, thick fluid. On passing downward along the ureters no tumor tissue can be found responsible for the obstruction to the lower portion of the ureter.

The Bladder has been partly described above. The mucosa is hemorrhagic.

Both testes are descended. The penis appears normal.

The Aorta shows marked sclerosis of the abdominal and thoracic portion.

The organs of the Head and Neck are not examined.

Diagnoses:

1. Carcinoma of prostate.
2. Bilateral pyelonephritis and hydronephrosis.
3. Suprapubic cystotomy wound.
4. Localized suppurative peritonitis.
5. Kyphosis.
6. Arteriosclerosis.
7. Coronary sclerosis.
8. Old healed, tuberculosis, left upper lobe.
9. Hemangioma of liver.
10. Slight hydrops of gall-bladder.
11. Marked emaciation.
12. Puncture wounds.
13. Radium implants in prostate.
14. Metastases to bones (x-ray).

III. CASE REPORT

CARCINOMA OF PROSTATE (OCCULT)  
POST-OPERATIVE HEMORRHAGE.

Path. Koucky.

The case is that of a white male, 70 years of age, admitted to University Hospitals 12-28-31 and died 1-6-32. (9 days).

Burning

7- -30 - Burning on urination.

Acute Retention

3- -31 - Patient developed acute retention for which he catheterized himself. Following this, he was at the Minneapolis General Hospital for a period of five days. Refused operation and went home.

Hematuria

3- -31 to 12- -31 - Patient had Frequency, nocturia about six or seven times, burning in genitalia and rectum and frequent attacks of acute retention for which he catheterized himself. He observed hematuria at these times.

Hospital

12-28-31 - Admitted to University Hospitals. Complaints: Frequency. Burning. Diminution of urinary stream. Noctura. Past History: Gonorrhoea at 32. Umbilical hernia. Right inguinal hernia for ten years. Head and neck - occasional attacks of vertigo from progressive diminution of sight and hearing. Teeth

in poor condition. Cardio-respiratory - no symptoms. Gastro-intestinal - chronic constipation in July 1930. Developed indefinite gastric distress, aggravated by intake of certain foods, which persisted for a period of about 1 year. About 6 months prior to admission, the distress disappeared and he had no further trouble. Weight - best, 190 lbs. in 1910; usual, 180 lbs.; present 177 lbs.

Physical

Physical examination reveals a well-developed and well-nourished, white male, 70 years of age, who has no acute distress. Head - eyes, bilateral pinnae; ears, diminution of hearing; teeth, carious. Chest - lungs, negative; heart, blood pressure 130/92, apex slightly beyond nipple line, systolic murmur at apex which is not transmitted. Abdomen - small umbilical hernia, right inguinal hernia which is easily reduced. Extremities, skin, lymph nodes, and neurological examination - negative.

Rectal

Marked enlargement of prostate bilateral, smooth and uniform. Clinical impressions: 1. Benign hypertrophy of prostate. 2. Right indirect inguinal hernia. 3. Umbilical hernia.

Laboratory

Blood - Hb. 95%, wbc's 6,900. Urine - trace of albumen, many rbc's and wbc's, specific gravity varied from 1.004 to 1.030. Wassermann and Kahn - negative. Blood urea nitrogen - 28 mgm. Concentration and dilution (water) - specific gravity ranged from 1.004 to 1.020. P.S.P. - 55% excretion at end of 2 hours, 45% excreted within first hour.

X-ray

K.U.B. - conclusions: Bilateral kidney stones. Probable bladder stone.

Retention Catheter

Progress - Temperature, pulse and respirations - normal. Height - 71-1/4 inches. Weight - 175-1/2 lbs. Retention catheter was introduced and kept in place. There was some difficulty in keeping the tube functioning. Patient complained of pain in bladder from time to time. Total urinary output varied from 700 c.c. to 2000 c.c. Intake

ranged from 2200 c.c. to 3200 c.c.

1-5-32 - Surgically prepared.

1-6-32 - 8:00 A.M. - H.M.C. No. 1.

8:45 A.M. - H.M.C. No. 2. 9:20 A.M. -  
to operating room.

### Operation

One stage suprapubic enucleation of prostate at which time considerable bleeding was encountered. A pack was put into prostatic bed. A mushroom catheter was brought out through the suprapubic wound. 10:35 A.M. - Patient returned to his room. Pulse 92. 1:45 P.M. - Blood pressure 60/40.

### Hemorrhage

Considerable bleeding. 1500 c.c. saline with acacia given. 2:00 P.M. - Ephedrine sulphate gr. 3/4 (H). Surgical transfusion of 750 c.c. blood, no reaction. 2:30 P.M. - Blood pressure 100. Pulse 112 and very weak. 3:00 P.M. - Ephedrine sulphate gr. 3/4 (H). 3:10 P.M. - Patient returned to operating room.

### Exitus

Second operation: General anesthesia. The suprapubic wound was reopened. A pack was found to be in the bladder. This was removed and another pack was forced into the prostatic bed. The bladder was irrigated with hot water. During the operation, preparation was made for a transfusion. The veins were exposed. Patient expired before any blood was given at 5:30 P.M.

### Autopsy

The body is that of a well-developed, fairly well-nourished, white male, 70 years of age, measuring 156 cm. in length and weighing approximately 174 lbs. Rigor, cyanosis, edema and jaundice are not present. Hypostasis is purplish and posterior. There is a 11.5 cm. recent incision in midline below the umbilicus from which is oozing fresh blood. A catheter, pack and Penrose drain brought out through the incision. Small antecubital incisions are present in both arms with some puncture marks.

Pleural Cavities. On right side, the pleural cavity was smooth and glistening and contains no adhesions or fluid. On left side, there is an adhesion at apex, otherwise the lung is free. The Pericardial Sac is smooth and contains no

excess of fluid.

The Heart weighs 450 grams. The left heart appears hypertrophied. The myocardium shows small patches of hemorrhage within the muscle and the left ventricle just beneath the endocardium. There is no thickening or evidences of valvular disease. The Root of the Aorta shows small plaques of arteriosclerosis. The valves of the coronary vessels are open and surrounded by small plaques of arteriosclerosis. The lumen of the vessels and cells are opened and show no evidence of obstruction.

The Right Lung weighs 460 grams, Left 385 grams. The posterior part of lower lobe of right lung is dark purplish-blue in color, and patches of lung tissue at the periphery of lobe in its posterior portion appears to be early atelectasis. In left lung at apex, there is a nodule about 1.0 cm. in diameter which is hard and on cross section is composed of light fibrous tissue without caseation or calcification.

There is a very slight increase of fluid in the Peritoneal Cavity which is blood-tinged. No blood clots or free blood are seen. The surface of bowel is smooth and glistening. The bowel is not dilated.

The Spleen weighs 200 grams. The capsule is very much thickened. There are plaques of yellowish, firm material incorporated in capsule which roughened the surface of spleen. This is present only on costal surface. On cut section, the spleen shows increase in the trabeculations.

The Liver weighs 1650 grams. The surface is smooth. On cut section, color and lobulations appear normal.

The Gall-Bladder is covered with adhesions from the omentum. The bladder itself is somewhat small and the walls appear to be thickened. No stones are palpable. The common and cystic ducts are normal.

No evidences of healed or recent ulcer are seen in stomach and duodenum. The serosa is smooth throughout.

The Appendix is very long, somewhat thin, and adherent to the posterior wall (abdominal) in its middle portion.

Pelvis. The bladder had been incised and at operation was sutured to anterior abdominal wall. In abdominal wall, pre-peritoneal space, and pre-vesicular space is extensive hemorrhagic infiltration.

The retroperitoneal spaces throughout the pelvis are filled with same hemorrhagic infiltration which extends laterally toward the left side, surrounding the pelvic colon, and behind the sigmoid colon extending upward on left side behind the peritoneum as high up as left kidney.

The Kidneys, ureters, Bladder, Prostate, and rectum are removed en masse. During the removal, the pack in prostatic bed is not removed. In dissection, it appears that the prostatic bed is extremely thin and on the anterior portion two perforations appear into the prevesicular space through which the pack can be seen and felt.

The Right Kidney weighs 200 grams. The capsule strips easily. There is a slight hydroureter extending from bladder about to midpoint of right ureter. On section, the kidney appears to be normal. The pelvis of kidney is not dilated. In the upper calyx, there were about ten or twelve small stones, ranging from 1.0 mm. up to about 4.0 mm. in size. Three or four small stones are also present in the lower calyx. The Left Kidney weighs 225 grams. The capsule strips easily. On cut section, kidney substance is normal. The pelvis is not dilated. In the upper calyx, there are a very few small stones. In middle calyx, there are six or eight very small papillary projections on the mucous surface. The left ureter is not dilated.

The Bladder and Prostate are opened in one piece. The inside of bladder is markedly trabeculated and there is a recent hemorrhagic cystitis present. The wall of bladder is very much thickened (1.0 cm. in thickness). The prostatic bed is about 5 cm. in length. The remaining portion of prostate is very thin and its anterior surface is deficient in two places. The enucleation of adenoma had taken part in upper part of gland. The upper portion of verumontanum had been removed with the adenoma. The site of ejaculatory ducts cannot be made out.

The external Genitalia, Pancreas and Adrenals appear normal.

The Aorta shows very slight arterio-sclerosis.

#### Diagnoses:

1. Benign prostatic hypertrophy (clinical).
2. Carcinoma of prostate (microscopic examination).

3. Recent prostatectomy.
4. Hemorrhage in pelvic and posterior abdominal retroperitoneal spaces.
5. Shock (clinical).
6. Bilateral patchy atelectasis.
7. Left ventricular hypertrophy.
8. Slight coronary sclerosis.
9. Slight arterio-sclerosis.
10. Bilateral kidney stones.
11. Slight right hydroureter.
12. Trabeculation of bladder.
13. Umbilical and right inguinal herniae.
14. Suprapubic and antecubital incisions.
15. Chronic cholecystitis.
16. Old healed tuberculosis left lung.

#### IV. ABSTRACTS

##### CARCINOMA OF PROSTATE

Abstr. Pearson.

#### References:

- A. Ewing; Neoplastic Diseases - Third Edition, Saunders 822-834 (January) 1928.
- B. Bell; Textbook of Pathology, First Edition, Lea & Febiger, 351-353, 1930.
- C. Boyd; Surgical Pathology - Second Edition, Saunders 524-539, 1931.
- D. Barringer, B. S.; Annals of Surgery, XCIII, 326-336 (January) 1931.
- E. Roberts, O. W.; Brit. J. of Surg. XV, 652-661 (April) 1928.
- F. Bumpus, H. C.; J.A.M.A. LXXVIII, 1374-1376, 1922.
- G. Colston, J.A.C.; Journal of Urology, 24, 655-661 - 1930.
- H. Smith, G. G. and Peirson, E. L.; Journal of Urology, 25, 531-542, 1930.
- I. Dossot, R.; Journal of Urology, 25, 217-245, 1930.

J. Clin, H.; Woodlawn Hosp. Quart. 1, 40-54 (Sept.) 1931.

K. Bumpus, H. C.; S.G.O., XXXV, 177-180, 1922.

1. Frequency: Ref. A, B, C. I.

Hypertrophy of the prostate occurs in about 33% of men over 60 and occasionally much earlier, but never over 70 years (1894). In about 8% of men over 60, hypertrophy is sufficiently pronounced to produce symptoms of obstruction (1930). Carcinoma of the prostate occurs in 15 to 20% of all cases of prostatic disease requiring operation. (Young). 15% of all operative prostatic cases are malignant (Mayo Clinic). Carcinoma of the prostate constituted 5% of all admissions to the Brady Urological Institute. In older series (when it was considered a rare disease) it was found in only 0.27 to 0.42% of all carcinomas in males. These figures are confusing. Apparently, the only uniformity is to be found in the frequently repeated statement that 15 to 20% of all cases of prostatic disease requiring operation are malignant. This is given further support by the following study.

Dossot studied 154 cases of cancer of prostate, 82 of which were accompanied by histological examination of the operative specimen and 63 by autopsy reports. The frequent occurrence of cancer of the prostate is today well-known. The following figures are taken from the pathological reports of the Urological Clinic of the Necker Hospital Paris, Prof. F. Legueu, from January 1, 1919 to July 15, 1925:

Primary cancer of the prostate . . .	123
Prostatic adenoma . . . . .	557
Cancer of bladder . . . . .	99
(68 in male, 24 in female, in 7 cases the sex was not given)	
Cancer of penis . . . . .	5
Cancer of testicle . . . . .	14
Cancer of urethra . . . . .	8
(3 in male and 5 in female)	
Cancer of kidney . . . . .	48
(22 in male, 12 in female, and in 14 cases sex not given.)	

Thus:

A. In the total of 680 prostatic tumors, cancer occurred in 18%. (Not a single case of sarcoma was observed during this period.)

2. Cause: Ref. A, I.

Hyperplasia is an associated condition in about 50% of the cases. There may be a long history of hypertrophy in cases developing carcinoma (about 10%). Early cancerous changes are found in 19% of enlarged prostates (Ewing). The susceptibility of workers in aniline products to bladder tumors does not extend to the prostate. Ewing believes that chronic hypertrophy is the chief predisposing factor to prostatic carcinoma. The satisfactory explanation of the relationship between the processes remains to be determined.

Dossot states that precancerous states play a very important role in the genesis of cancer in general. The histological examination of certain prostates which presented the macroscopic aspect of hypertrophy showed the existence of the epithelial proliferation of evident malignancy. (Adeno-epithelioma and adenoma-epithelioma). The author quotes the American view that hypertrophy and cancer of the prostate are two conditions absolutely distinct, developing in different portions of the glands. Their association is only due to the fact that both develop approximately in the same period of life. Clay Shaw states that in more than 1000 operative specimens examined at the Johns Hopkins Hospital, cancer developing in the middle of the hypertrophied lobule has only been found on 2 occasions.

In the French conception, periurethral adenoma frequently undergoes cancerous degeneration and one finds numerous intermediary stages between benign lesions and malignant lesions. That a cancer of the prostate can co-exist with adenoma is not doubted, but in the majority of cases the theory of Young seems to them untenable. One may observe numerous examples of degeneration in the organism as a whole (outside the prostate).

Routine studies of large numbers of prostate show that malignant transformation does take place and he has been able to trace many of these cases.

Note: This is also true in our experience as we frequently see glands where we are somewhat in doubt. The authors distinguish two varieties of prostatic cancer. (1) The true cancer of the prostate which develops in the gland itself; it may co-exist with or without

**adenoma;** (2) urethroprostatic adenoid cancer which develops at the expense of the adenomatous glands of the prostatic urethra. Among 134 observations of primary cancer, 61 were of the second type, 17 adenomata were suspected of degeneration, 46 were true cancers, and 6 probable true cancers co-existing with adenoma. Cancer and adenoma were found associated in 59 per cent of the cases.

### 3. Age. Ref. D.

One frequently finds the statement that benign hypertrophy is more common between 50 and 60, and malignant disease between 60 and 70. However, if the age groups from 50 to 75 are studied, a little different conception is to be had. Young in a series of 898 cases of benign hypertrophy showed that 794 or 89% occurred between the ages of 50 and 75. In a series of 280 cases of cancer, reported by Barringer (Memorial Hospital) 197 or 87% fell in the same age group. If differential studies by decades are made, the peak age group of benign hypertrophy occurs from 55 to 59, while in cancer it is from 65 to 69 or one decade later. This apparently is only of academic interest for the difference for each five year period is relatively slight.

#### Age incidence on Admission of Carcinoma of the Prostate in 227 of 280 Cases Studied at the Memorial Hospital.

	<u>No. of Cases</u>	<u>Percentage of group</u>
Under 34	1	0.4
35 to 39	3	1.3
40 to 44	3	1.3
45 to 49	6	2.6
50 to 54	26	11.4
55 to 59	42	18.5
60 to 64	44	19.3
65 to 69	50	22.0
70 to 74	35	15.4
75 to 79	13	5.7
80 to 84	3	1.3
85 to 89	1	0.4
Total ages 50 to 75	197	86.6
Total entire group	280	99.6

### 4. Classification. Ref. A, E.

Ewing states that clinical course of prostatic carcinoma is notably dependent upon the essential type of the tumor. 1. Adenoma (adenocarcinoma)

arising in chronic prostatitis may give symptoms of chronic hypertrophy and the carcinoma is discovered only in the extirpated gland. 2. Adenocarcinoma usually arises on hypertrophy and may give a large hard nodular prostate which exists for many months before involving lymph nodes. Eventually, it produces local extension and then finally generalizes. It is often extirpated and regularly occurs. 3. Fully developed carcinoma, (alveolar or diffuse) may fail to cause much enlargement of the gland. Symptoms are moderate. The disease is overlooked or, metastatic tumors are regarded as primary or, the condition is discovered only at autopsy. True adenomas developing in the prostate always appear to be locally aggressive and in this respect malignant. Note: "True adenoma" is to be differentiated from the rather loose terminology of calling hypertrophy of the prostate-adenomatous. Squamous epithelioma of the gland has been described. Sarcoma rarely occurs and many of the reported cases are of uncertain nature. The only well-defined variety is the rhabdomyosarcoma. Many of the sarcomas of the prostate are described in children. They may be round cell, lymphoid-myxomatous or spindle cell. They usually produce bulky tumors and destroy adjoining structures.

Clinical classification is probably more helpful. According to Roberts, carcinoma of the prostate may be divided into 3 classes. 1. Cases in which prostatic symptoms predominate, i.e. urinary obstruction. 2. Cases in which pelvic and sacral pain predominate. In many of these, urinary symptoms are also present. Note: In the first two groups, rectal examinations are valuable in making the diagnosis. 3. Cases in which distant dissemination of the growth give rise to symptoms. Rectal examination is often indecisive although inguinal gland involvement (as in the other cases) may be suggestive. Post-mortem examinations are frequently the only way of making an accurate diagnosis in this group.

### 5. Symptomatology. Ref. D.

Barringer analyzes the initial symptoms and the secondary symptoms occurring in 280 cases of cancer of the prostate:

Initial Symptoms Occurring in 280 Cases  
of Cancer of the Prostate

Sumptom	Number	%
Frequency	134	47.8
Difficulty	96	34.2
Nocturia	79	28.2
Dysuria	60	21.4
Retention	45	16.0
Backache	26	9.2
Haematuria	24	8.5
Pain in thighs and legs	19	7.5
Pain in lower abdomen	14	5.0
Urgency	12	4.2
Incontinence	11	3.9
Constipation	10	3.5
Pain in hips	9	3.2
Loss of weight	8	2.8
No urinary symptoms	8	2.8

Secondary Symptoms Occurring in 280 Cases  
of Cancer of the Prostate

	Number	%
Nocturia	51	18.2
Retention	45	16.0
Haematuria	39	13.9
Frequency	34	12.1
Dysuria	32	11.4
Loss of weight	31	11.0
Backache	25	8.9
Loss of strength	20	7.1
Pain in thighs and legs	18	6.4
Pain in lower abdomen	14	5.0
Constipation	13	4.6
Rectal pain	10	3.5

The symptoms are not easily differentiated from those of benign hypertrophy for both conditions are often present at the same time. A prostatic carcinoma is frequently superimposed upon a benign hypertrophy but many cancers develop in non-hypertrophied prostates as well. Hard carcinomatous nodules are easy to miss when covered by edematous prostatic tissue.

We have found that after subjecting these doubtful and suspicious superimposed cases to a cycle of high voltage x-ray therapy (causing the edema to disappear) the diagnosis is easier. Then the hard carcinomatous tissue stands out sharply defined from the elastic enlargement of the benign hypertrophy. The initial symptoms fall into two main groups: 1. urinary symptoms; and 2, pain. The urinary symptoms are usually the first observed by the patient and therefore the

most important from the point of view of early diagnosis. The two most com-  
mon symptoms are frequency and difficul-  
ty in urination. In 82% of our 280  
cases these two symptoms were the first  
exhibited. Other common symptoms are  
nocturia, retention, hematuria, urgency  
and incontinence. The symptoms of pain  
which cause the patient to consult his  
physician are, in the order of their  
importance; painful urination, backache,  
pain down the thighs and legs (sciatica)  
pain in the lower abdomen and pelvis,  
pain in the hips, groin, penis, rectum  
and perineum. Most (if not all) of  
these are late symptoms, due to direct  
invasion of the bladder neck, pressure  
on nerve trunks by invaded pelvic  
nodes, obstruction to the venous  
circulation, or to distant metastases,  
especially to the bones. Many patients  
wait until retention or hematuria com-  
pel them to seek advice. Retention  
in itself is not indicative of far-  
advanced cancer. It is often caused  
by associated benign hypertrophy.  
Diligent search for carcinomatous  
changes in the prostate of the reten-  
tive case will often lead the surgeon  
to an early diagnosis of prostatic  
carcinoma. Many of our patients'  
histories indicate the possibility  
of much earlier diagnoses had their  
physicians made careful digital  
examinations at the time of the first  
attack of retention. In our series,  
an average of 24 months had elapsed  
between the appearance of initial  
symptoms and our first examination.  
Hematuria is seldom an early symptom,  
usually occurring only when the tumor  
has invaded the posterior urethra or  
bladder. A total of 63 (initially and  
secondarily) had this symptom, cysto-  
scopic examination proving 41 of these  
to be extension of the neoplastic pro-  
cess to the bladder. Occasionally,  
there are no urinary symptoms in well-  
advanced cases, as in 8 of our patients.  
(Note: The so-called silent type of  
prostatic carcinoma is frequently  
described. It makes up approximately  
3% of all series and has been the  
subject of many individual case reports  
and has been seen on our own service.)  
Some of the symptoms are referred to  
the gastro-intestinal tract and genital  
organs. One, consulted his physician  
because of persistent diarrhea. Another

because of rectal bleeding. One had a colostomy and a resection for supposed rectal carcinoma before the tumor was shown to be of prostatic origin. In another, resection of the right ileum was undertaken for a new growth which proved to be metastasis from a cancerous prostate. The later symptoms of cancer of the prostate do not differ greatly from the initial symptoms."

6. Extension and metastasis. Ref. C, A, F, E, I, J.

"The carcinomatous growth follows planes of least resistance. It is very slow in invading fibrous capsules, both of the prostate itself and also of hypertrophied lobes. The musoca and submucosa of both urethra and bladder are very resistant to it. The most common site for the beginning of cancer is from posterior lobe. From there it invades the rest of the prostatic tissue or travels upward escaping from the upper end of the prostate in the region of the ejaculatory ducts and between the fascia of Denonvilliers posteriorly, and trigone anteriorly. In its further growth, the seminal vesicles and vasa deferentia may not become infiltrated. In some cases their lumina are filled with cancerous cells and in the case of the vasa it may extend upward for a long distance, the outer walls of the vasa remaining apparently intact. The muscle of the trigone and bladder and also the peritoneum may be invaded from this subtrigonal involvement. Finally, the fascia of Denonvilliers which gives the prostate its tough capsule posteriorly is a most effective agent in preventing involvement of the rectum and peri-prostatic structure." (Young.) Note: Recently this idea that all carcinomas of the prostate arise in the so-called posterior lobe has been vigorously attacked. Our ideas along this line may have to be altered. In the early stages carcinoma may appear as single or multiple foci of a hard structure in hypertrophied organs. Usually, the whole gland is enlarged, hard and fixed but one lobe is frequently the chief site of the disease. It also may arise in the glands of the prostatic urethra. A markedly indurated prostate in a man over 50 years causing urinary retention is highly suspicious of carcinoma especially if it is very hard and not very large. In men with hard

prostates induration along the seminal vesicles and pain and hematuria, the presence of carcinoma is practically certain. (Young.)

Dossot in 38 cases found adenopathies were accurately described. Cases without adenopathy 2 (5%); hypogastric glands 21 (55%); external iliac glands 17 (45%); primary iliac glands 20 (50%); pelvic glands without other specifications 5 (13%); abdominal glands 33 (87%); inguinal glands 3; tracho bronchial glands 1; supra clavicular glands 1. Cancerous glands occur more frequently without periadenitis and would easily pass unnoticed if one did not search systematically in the cellular tissue in the pelvis and along the course of the large abdominal vessels. Sometimes an intense periadenitis is present, and they form an enormous neoplastic mass filling the entire pelvis or forming a thick prevertebral area of infiltration which can be the point of origin of spinal invasion.

Visceral metastases are infrequent. They are found in only 9 of 63 autopsies (14%); (7 were pleuro-pulmonary, 2 hepatic.) They seem to be more frequent in true cancer of the prostate than in adenoid cancers and occur through the blood stream and through the lymphatics. Although visceral metastases are rare in cancer of the prostate, bony metastases are frequent. In none of their 63 posted cases was the tumor limited to the prostate. The author states that no osseous metastases were noted in the autopsy protocols (indicating the value of x-ray in bringing out this point.)" Note: Any series of cases, therefore, which are not routinely systematically studied by x-ray do not accurately show the number of metastases to bones.

Ewing states, "The bladder is invaded in 57% of cases (Kaufmann). In 32% the fundus is involved, probably by way of the lymphatics. Direct invasion through the trigone is also common. The ureters are invaded from the vesical wall as in bladder carcinoma, occluded by nodules at their orifices or compressed by enlarged lymph nodes. Constipation may be due to pressure from the tumor.

Bone metastasis are markedly osteoplastic in character and occur in a notable group. Kaufmann's figures are

frequently reported. They state that this happens in 72% of prostatic carcinomas, (37% in thyroid carcinomas, and 14% in mammary cancers). Most are osteoplastic and the condition is rarely shared by other types of tumors with the occasional exception of breast, thyroid and kidney. It is in the group of cases in which the bone involvement predominates the picture and the diagnosis is sometimes deferred until autopsy. The osteoplastic process predominates over the osteoclastic but both may be equally prominent. Severe anemia may result. The histological process in the bone has been extensively studied and apparently the whole process is initiated by the lodgment of tumor cells and small venous sinuses causing hemorrhages. This is followed by a reactive growth of osteoid and osseous tissue. A chemical influence has also been described. The much quoted series of bone metastasis by Copeland, 1040 cases of prostatic carcinoma with osseous metastasis in 134 (13%). This figure is probably to be questioned as was the figure on metastatic breast carcinomas which showed only 5% as contrasted with 48% in completely studied series by Lenz and Freed, and 50% by Carnett and Howell, (the last two figures being for breast carcinoma. Ref. General Staff Meeting, University Hospitals, II, (33) June 4, 1931.

According to Olin the 5th lumbar is the site of predilection. Frequency of complication in addition to Kaufmann 72% is Blumer 67%, Simpson 30%, Bumpus (Pelvis 30%, Spine 26%, ribs 5%, femur 6%). A solitary nodular type is also described in addition to osteoclastic, osteoblastic, and combined types.

Bumpus, 1922, reports 729 cases of carcinoma of the prostate. He states that before treating such patients metastasis must be excluded. The frequency in which metastasis occurs in these cases is not fully appreciated unless routine roentgenograms are made. In 297 of these series, plates were made of the chest, spine or pelvis. In 84 (29%) metastasis was demonstrated. Note: incomplete study. 73% of 113 patients with metastasis examined at the clinic died in their 3rd year, the average length of life being 7 months.

Roberts, Transcoelomic spread occurs in some cases in which the peritoneum may be studded with nodules.

#### 7. Treatment: Ref. G, H, D, I, K.

Colston states that there are three treatment types of carcinoma of the prostate. (1) radical operation (very few). Usually picked up on routine examination. In order to perform a radical operation satisfactorily, there must be no extension of the growth beyond the capsule into the seminal vesicles, or the base of the bladder. (2) cases with obstruction, growth has usually extended upward in the seminal vesicles or pelvic glands or to the base of the bladder. Bone metastasis may or may not be present. A case of this type is best treated by a combination of radium and x-ray therapy (only palliative). Still in many, the growth can be markedly reduced in size and the development of urinary obstruction may be prevented. Patients may be tided over for long periods of time with comparative comfort. In many deaths, cachexia and widespread metastasis may occur with little or no increase in the size of the original tumor. (3) Cases with more or less urinary obstruction with or without bony metastasis. This type is best treated by conservative peritoneal prostatectomy or punch operation.

A study was made of the end results in cases treated by conservative prostatectomy (1922 to 1927). Two hundred and sixty eight cases of carcinoma of the prostate were seen at the Brady Clinic during this time. One hundred and seven were treated by conservative perineal prostatectomy, 25 by punch operation, 13 by radical operation, 65 by radium and x-ray, 56 were not treated for various reasons. In any case, residual urine should be measured together with a careful palpation of the gland, an examination of the x-ray film, to determine which of the three groups the case belongs to. A cystoscopic examination is indicated in order to determine by actual observation the degree of obstruction of prostatic orifice.

In many, it will be found to be due to malignant infiltration. This type of case can be treated by the punch operation. It may lead to complete relief of symptoms over a long period of time. If the obstruction is characterized by growth of the

regular lobules, the punch operation is usually ineffective or often dangerous. These cases are best suited for conservative perineal prostatectomy.

The preoperative preparation being essentially the same as in benign hypertrophy. The operation is usually more difficult than the removal of benign gland because no definite line of cleavage can be found. Bleeding is more frequent. In many cases malignant tissues are removed with a curette. The operation should not be completed until all obstructing tissues have been removed and the internal sphincter is quite widely dilated. Special care should be used in stopping all hemorrhages. Caudal anesthesia is used.

Of 107 cases treated in this way, there were 8 operative deaths (8%) about twice the mortality of the benign cases. Of the 99 cases who left the hospital, only 34 were traced. Assumed that the other 65 died. Of the 34 cases, 13 died within 1 year, 8 within 2 years and 1, four years after the operation. One is living without symptoms 7 years, one 6 years, one 5 years, one 3 years and eight 2 years.

The only other treatment in cases of malignant strictures is suprapubic cystotomy and introduction of a tube. The author feels very strongly that the results obtained by the perineal operation are superior to this simply palliative operation. He feels that the suprapubic cystotomy, while it relieves the obstruction, makes them comparative invalids because of the necessity for the care of the wound.

#### Palliative Deep X-ray Therapy:

Smith and Pierson report a study of the records of 61 cases of prostatic carcinoma, most of which were treated in the tumor clinic at the Massachusetts General Hospital. In many instances, patients did not report after the first series of treatments or else they were in such an advanced stage of the disease that death occurred before they could be given more than one series. High voltage X-ray therapy was used. 25 patients were traced, 4 (6th decade), 14 (7th), and 7 (8th). Fifteen had been operated upon, punch operation (3), partial prostatectomy (9), total prostatectomy (2), and suprapubic cystotomy (1). In all of these cases growth was present when the treatment was begun. They were divided

into three classes (3, 9 and 13) depending upon the extent of the process. Relief from pain was the most constant effect of the treatment (18 cases). The rapidity with which the pain was sometimes relieved was noteworthy. Influence of X-ray upon the extent of the growth was more difficult to demonstrate. In 9, it was thought that the prostate was smaller (at least temporarily). In 10 the growth increased. In 2 it remained unchanged. 11 thought that their strength was improved for a time and many certainly did appear to be in better health, 6 became weaker. The authors believe that if metastasis was not too widely spread, if the patient's general condition was not too poor, X-ray treatment is of benefit in a large majority of the cases as a palliative measure. X-ray almost never relieves the symptoms of obstruction. It must be relieved by some other measure. The relief of pain in each series of treatment lasted from 1 to 3 months, therefore they think it is advisable to repeat the series every 2 or 3 months until 3 or 4 are given. The study of their small group shows very definitely that if good results are to be obtained, the patients must be treated intensively.

#### Interstitial Radiation.

Barringer reports "a series of 280 cases. Histological confirmation of the clinical diagnosis was had in 18% (biopsy or surgical specimen). With the addition of needle biopsies this number has markedly increased (14 of the last 15 cases studied). Carcinoma may and does originate in any portion of the gland, regardless of the presence or absence of hypertrophy, no false sense of security should be felt, due to an apparent normality of the posterior lobe. By utilizing this advance in biopsy technique, any suspicious nodule in a prostate may be readily subjected to microscopic study. An estimate of the status of 241 of the 280 cases was made at the time of first examination in each case. 221 were classified as advanced cases, while only 20 (9%) could be considered early. 78 of the 221 represented postoperative recurrences.

The first series reported was in October 1915 and January 1917. In spite of the material seen, 5 of 45 cases reported at that time were alive and well

after five years. These cases were treated by the insertion of steel radium bearing needles through the perineum into the prostate and seminal vesicles. Small doses 200 or 300 mch. for each needle were utilized, repeating the dose every 2 or 3 months until the condition was controlled and no evidence of regression was found. One of these cases died from other causes, 7 years after he was first seen and no evidence of carcinoma was found. (Ewing made the original diagnosis of carcinoma of the prostate).

Since the first series progress has been slow but sure. There has been a continual transition of radiation therapy. Review of the file of current cases shows 8 of 40 cases alive and well for a period of 5 years. This means that 20% of our active cases at the present time are still under control after 5 years as compared with 10% in the first series.

We believe that a tissue dose of somewhere between 10 and 15 skin erythemas delivered to the tumor is necessary to control the large majority. But the adenocarcinoma is a radio-resistant tumor. Since tissue doses delivered to these tumors by external means can rarely exceed 1 to 1-1/2 S.E.D. it is essential to deliver the bulk of the total dose necessary by interstitial radiation with gold seeds of radon. We have reversed our original contention that the best approach is through the perineum. We believe that cystotomy should be done, any obstructive portions of the prostate removed with cutting forceps or cautery, and the entire tumor, no matter what its limits, implanted with radon using seeds of 2 millicuries each to every cubic centimeter of new growth. In this way we are able to use doses adequate to the need, at the same time making the patient more comfortable and avoiding the risk of renal decompensation due to obstruction at the bladder neck. It seems to us that the suprapubic exposure is better suited to the purpose than the perineal route. This region is allowed to remain intact, as a protective barrier to tumor extension. Inasmuch as the possibilities of radical surgery are exhausted, radiation has become the treatment of choice."

Dossot: "One can only hope to have cures in those patients operated for benign hypertrophy in which histological examination demonstrates the existence of the malignant tumor. 28 cases of supra-

pubic prostatectomy done by Professor Legueu under such conditions reveal the following findings: of these 28 patients 9 are dead. 1, 4-1/2 years after operation; 1, 1 year after; 1, 16 months after, 2, 2 years after, 1, 10 years after; 3 living--no information on date of death, 19 were living in July 1925. In 12 of them cure had been maintained as follows: 1, 6-1/2 years; 1, 5-1/2 years; 2, 2 years 8 months; 2, 2 years; 2, 20 months; 1, 19 months; 1, 18 months; 2, 17 months. Suprapubic prostatectomy carried out very early is therefore capable of giving some interesting results over a long period of time, not only in adenoid but also in true cancer of the prostate. The immediate mortality is not very much higher than in the removal of benign hypertrophy, (12%). When the histological examination has shown the existence of malignancy should one make an application of radium in the vesico-prostatic cavity? Opinions are divided on this subject. It seems indeed that the results of this association of therapy are not better than those obtained by surgery alone.

Bumpus states that prior to 1915, radium was not used at the Mayo clinic. 72 cases of early carcinoma of the prostate were compared with 77 cases of advanced disease. Both had prostatectomies done. Both perineal and suprapubic approaches made. The results showed very little difference in the 2 groups, i.e., 34% of the first and 35% of the second died in the first year. Average length of life 26 and 27 months. Perineal average life 26 months. Suprapubic 28 months. An untreated group of 241 was observed. The average duration after being seen by a physician was 10 months. A surgical group of 106 was later studied with a radiated group of 118. Even author admits that a purposeful selection of good cases was made for surgery, in poor cases for radium. Technique of radiation was in a transitional stage. So the observations should not be given too much weight.

Walters, W., Minn. Medicine, XIII, 808-815, (Nov.) 1930 summarized practically the same viewpoint. Bumpus has found demonstrable metastasis in 24% of 1000 cases of prostatic carcinoma. The clinic still advises

prostatectomy in enlargement due to carcinoma when the process has not extended too widely beyond the gland. This automatically eliminates all metastatic cases. Even if it does not cure, it relieves obstruction for sometime. If the gland cannot be removed, permanent cystotomy may be done. It has been very difficult to evaluate the effects of radium in such cases. Of 164 patients with carcinoma of the prostate gland, operated on at the clinic, 35 were still alive in 1925, 21 had lived longer than five years.

#### Impressions:

1. Carcinoma occurs in 15 to 20% of all cases of prostatic disease requiring surgical treatment.
2. Associated hyperplasia is found from 50 to 60% of all cases of malignancy. It may or may not be etiologically significant.
3. Certain benign prostates show "suspicious" areas which may represent transitional changes.
4. Carcinoma and benign hypertrophy are equally common between 50 and 75. (87 - 89%).
5. The peak of incidence in benign disease is 55 - 59, malignant 65 - 69.
6. The idea that all prostatic carcinoma arises in the posterior lobe has been vigorously attacked. With the exception of Young, most observers think that the tumor can arise in any place.
7. The clinical course is dependent upon the type of tumor.
8. A suggested clinical classification: A. urinary obstruction; B. Pelvic pain with or without urinary obstruction; C. Distant deposits with or without local signs.
9. Frequency and difficulty in urination are usually the earliest signs. The story sounds very much like benign hypertrophy in the beginning.
10. Hematuria is usually a late sign.
11. Most patients usually delay two years before seeking aid. Obstruction, pain and hemorrhage usually brings them to in.
12. Most carcinomas of the prostate are advanced cases when first observed.
13. Retention of urine is not necessarily indicative of late malignancy.
14. Silent types of the disease are encountered (about 3%) and the distant deposits are confusing.
15. Invasion of nearby organs and lymph glands probably always occur in untreated cases. Extensions are probably early.
16. Bone metastasis occurs in from 13 to 72% of the cases. The changes are usually very distinctive from a radiological standpoint.
17. The actual number showing bone involvement is still uncertain. The problem is still one for clinical research.
18. Deep x-ray therapy is a palliative procedure of considerable merit in advanced cases. All advanced carcinomas without obstruction should be treated in this way.
19. Deep x-ray therapy apparently does not affect the size of the gland very much.
20. The malignant obstruction may be punched out (if a bar), removed, removed and the fixed portion infiltrated with interstitial radium, treated through the perineum with needles, or a simple cystotomy done.
21. The evidence that simple cystotomy is the best form of treatment is not convincing. Rovsing thinks that we should not do it until absolutely necessary.
22. Untreated cases live less than a year. Treated cases usually live more than two years.
23. Most cures result from simple prostatectomy in so-called "occult" cases. The pathologist makes the diagnoses on the removed material.
24. Post-operative interstitial radiation is or is not indicated into the capsule in such cases.
25. Many clinical and pathological errors are made in handling carcinoma of the prostate. All cases of prostatic disease after 50 should be considered malignant until proven otherwise.

OUT-PATIENT DEPARTMENT REPORT

V.

R. M. Amberg, Manager

A comparison of clinic attendance from reports covering the period July 1st to December 31st, years 1929, 1930, 1931.

Admission Clinic started during the month of November, 1929. All new patients excepting pediatric cases are routinely sent through this department for complete physical examination and referred to other departments for special services. The Department of Pediatrics conducts their own admission service. Night Clinic admits direct.

Admissions (Six months period, July 1 - Dec. 31)

	1929	1930	1931
Admission Clinic		2201	2310
Pediatrics		739	713
Night Clinic		40	41
Total New Admissions		2980	3064

Department of Medicine

	New Patients			Total Visits		
	1929	1930	1931	1929	1930	1931
General	1825	234	351	5489	3676	6716
Cardiac		247	207		879	712
Chest		162	141		641	935
Gast.-Intest.		194	160		208	171
Metabolism		40	35		353	407
Neurology	252	446	403	718	942	880
Skin						
"L" Clinic		108	113		2016	2753
Dermatology	447	402	353	4456	1968	1610
Department Total	2524	1833	1763	10663	10683	14184

Department of Surgery

	New Patients			Total Visits		
	1929	1930	1931	1929	1930	1931
General	607	642	469	3264	2764	2740
Genito-Urinary	133	173	133	1619	2940	1936
Goitre		39	13		89	160
Reconstructive		17	11		80	36
Tumor		152	221		683	1029
Gyn-Surgery		17	36		206	316
Orthopedic	137	295	185	269	647	566
Urology - Female		19	64		64	164
Department Total	877	1354	947	5152	7473	6947

Department of Pediatrics

	New Patients			Total Visits		
	1929	1930	1931	1929	1930	1931
Department Total	628	739	713	2470	2585	2765

Department of Obstetrics & Gynecology

	New Patients			Total Visits		
	1929	1930	1931	1929	1930	1931
Obstetrics	168	249	196	1144	1514	1242
Gynecology	<u>349</u>	<u>454</u>	<u>459</u>	<u>1907</u>	<u>1944</u>	<u>1960</u>
Department Total	517	703	655	3051	3458	3202

Department of Eye, Ear, Nose & Throat

	New Patients			Total Visits		
	1929	1930	1931	1929	1930	1931
Division of Eye						
Eye	602	682	858	1357	1415	1578
Refraction	<u>487</u>	<u>513</u>	<u>549</u>	<u>637</u>	<u>754</u>	<u>678</u>
Total Eye	1089	1195	1407	1994	2169	2226
Division of Ear	217	255	234	936	928	1282
Nose & Throat	<u>607</u>	<u>549</u>	<u>525</u>	<u>1402</u>	<u>1393</u>	<u>1242</u>
Total E.N. & T.	<u>824</u>	<u>804</u>	<u>759</u>	<u>2338</u>	<u>2321</u>	<u>2524</u>
Department Total	1913	1999	2166	4332	4490	4750

Nutrition Clinic

	New Patients			Total Visits		
	1929	1930	1931	1929	1930	1931
		2	66		5	173

Dentistry

	New Patients			Total Visits		
	1929	1930	1931	1929	1930	1931
	221	203	178	719	748	639

Night Clinic

	New Patients			Total Visits		
	1929	1930	1931	1929	1930	1931
Genito-Urinary	52	28	20	1102	1215	1010
"L" Clinic	<u>42</u>	<u>12</u>	<u>21</u>	<u>1780</u>	<u>1101</u>	<u>915</u>
Total	94	40	41	2882	2316	1925

Total Attendance - All Departments

	1929	1930	1931
	29,269	34,582	36,923