

GENERAL STAFF MEETING
MINNESOTA GENERAL HOSPITAL
UNIVERSITY OF MINNESOTA

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I. RECLASSIFICATION OF THE ANEMIAS

Ref.: Ottenberg, R. J.A.M.A. 100: 17,
(April 29) '33.

I. DEFICIENCIES

A. Iron Deficiencies

1. Blood loss
 - (a) Acute
 - (b) Chronic
 - (c) Hookworm anemia
2. Hypochromic anemia
 - (a) Chlorosis
 - (b) Simple hypochromic anemia
 - (c) Achlorhydric anemia
 - (d) Hypochromic anemia of pregnancy
3. Simple nutritional anemia of infants (on exclusive milk diet)
 - (a) Anemia of premature infants.

B. Deficiency of "Antianemic Principle"

1. Pernicious anemia
2. Sprue
3. "Pregnancy pernicious anemia"
4. Bothriocephalus anemia (certain cases)

C. Nutritional Deficiencies

1. Avitaminoses--anemia of beri-beri, pellagra, scurvy, rickets
2. Loss of bile or of pancreatic secretion
 - (a) Bile fistula anemia
 - (b) Pancreatic or duodenal fistula
3. Failure of intestinal absorption
 - (a) Chronic diarrheas, sprue (some cases), celiac disease
 - (b) Small intestinal stenosis
4. Nutritional anemia of adults
5. Certain infantile anemias (von Jaksch, Cooley)

II. INJURY TO THE BLOOD-MAKING ORGANS

(Interference with blood regeneration)

A. Toxic Destruction of Marrow

1. Aplastic anemia secondary to:
 - (a) X-rays, radium, thorium
 - (b) Benzene, arsphenamine, nitrobenzene, trinitrotoluene
 - (c) Lead, mercury, etc.
2. "Primary" aplastic anemia (toxic agent not yet known)

B. Mechanical Replacement of Marrow

1. Osteosclerosis
 - (a) Osteosclerotic anemia
 - (b) Marble bone disease (Albers-Schönberg)
2. Gaucher's and other lipid deposits in marrow (Niemann-Pick, Schüller-Christian)
3. Leukemia and Hodgkin's disease) Toxic factor
4. Metastatic new growths in marrow) also

C. Interference With Blood Regeneration at Some Intermediate Stage

1. Diseases of the spleen
 - (a) Banti syndrome ("splenic anemia")
 - (b) Sclerosis or thrombosis of splenic vein
2. Diseases of the liver
 - (a) Cirrhosis
 - (b) Prolonged obstructive jaundice

III. DISINTEGRATION OF BLOOD (Hemolysis)

A. Caused by Hereditary Defects of Red Blood Cells Themselves

1. Hemolytic icterus
2. Sickle cell anemia

B. Toxic Destruction of Blood

1. Infections
 - (a) Bacteria--all varieties, especially those invading the blood: hemolytic streptococcus, Staphylococcus aureus, Streptococcus viridans (bacterial endocarditis)
 - (b) Protozoa--malaria, kala-azar, syphilis
 - (c) Acute febrile hemolytic anemia (cause unknown)
2. Intestinal Worms--Bothriocephalus
3. Cancer (including leukemia and allied diseases)
4. Nephritis--azotemia
5. Extensive burns
6. Hemolytic poisons
 - (a) Serum hemolysins: (paroxysmal hemoglobinuria, incompatible transfus.)
 - (b) Chemical: (saponin, pyrodine, telylonediam.,

pyrogallol, snake venom, mushroom poison, phenylhydrazine, potassium chlorate.

Comment:

According to the author, "In the last ten years, a revolution has occurred in the views of anemia". He reviews the work of Whipple and Robscheit-Robbins (University of Rochester) commenting on their fundamental studies of blood regeneration in dogs. This is followed by a discussion of the Minot and Murphy contributions from Harvard on the use of liver. The work of Castle and his associates (Harvard), showing the relationship between gastric function and pernicious anemia follows. The contributions of Sturgis and Isaacs are next considered (Michigan). Steenbock, Hart and associates (Wisconsin) next worked on copper. The recent interest in iron therapy is then considered.

The classification is based to some extent on etiology and not morphology. Anemia is not a disease but a sign. Primary anemias do not exist. The classification will be quickly superseded as our knowledge increases (author). Multiple factors may be responsible for some forms. In general, the iron deficiency group is treated by iron, anti-anemic group by liver, etc., the nutritional group by diet while they may improve on iron, injury to the blood-forming organs chiefly by treatment of the cause, the disintegration group by blood replacement and specific therapy.

The section on treatment is very good, emphasizing the necessity in iron therapy of adequate dosage, solubility and technique of administration (mouth). The liver therapy is detailed and specific. The use of transfusion as an emergency measure is stressed. Specific therapy is emphasized. The article should be read not because it is the last word but because it attempts to bring our knowledge up to date in a comprehensive, fairly brief review. There is great interest in the treatment of anemia by the medical profession at the present time. Much of the stimulation has come from detail men from drug houses. Anemia is reduced hemoglobin or blood volume. Many physicians in practice either use an inaccurate method in determining hemoglobin or apparently do not know normal variation of the hemoglobin

content in the blood.

II. TUMORS OF THE BLADDER

Abstr. Wallace P. Ritchie.

Ref.:

1. Young, H. H. and Davis, D. M.:
Young's practice of urology.
W. B. Saunders Co. 1926,
538-605.
2. Counsellor, V. S. and Walters, W.:
Malignant tumors of the bladder.
Surg., Gynec. and Obst. LVI, 2A,
448-449, (Feb.) '33.
3. Smith, G. G., Mintz, E. R.:
Bladder tumors.
Ann. J. Surg. 20:54-63 (Apr.) '33.
4. Scholl, A. J., Judd, E. S., et al.:
A Review of Urologic Surgery.
Arch. of Surg. 26:712, (Apr.) '33.
5. Colston, J. A. C.:
Treatment of tumors of the bladder.
Am. J. Roent. 25:375, (Mar.) '31.
6. Le Compte, R. M.:
Neoplasms primary in bladder
diverticula.
J. of Urol. 27:667, (June) '32.
7. Lazarus, J. A. and Rosenthal, H.A.:
Myxosarcoma of the Bladder.
J. of Urol. 27:695, (June) '32.
8. Gabe, J.:
Sarco-carcinoma of the urinary
bladder.
Brit. J. Urol. 4:145 (June) '32.
9. Higgins, C. C.:
Benign tumors of the bladder.
Ann. of Surg. 93:886, (Apr.) '31.
10. Ballenger, E. G., Elder, O. F.
and McDonald, H. P.:
Hemangioma of the bladder.
Am. J. Surg. 17:409 (Sept.) '32.
11. Chwalla, R.:
Urinary bladder carcinoma and present status of the treatment.
Zeitschrift fur urologisch chirurg-

gle 35:251, (Aug.) '32.

The literature of the past few years contains no startling discoveries. There is nothing in the treatment of bladder tumors that can compare, in a dramatic sense at least, to the use of the prostatic punch for relief of prostatic hypertrophy. Nevertheless, there has been a very definite improvement in the results of bladder tumor treatment. This improvement appears mainly to be due to a more careful study of groups of cases in regard to their treatment, a sensible evaluation of the results obtained and an application of these principles to subsequent cases.

Since 1920 almost all the leading urological surgeons of this country and Europe have recorded their experience with bladder tumors. This abstract will attempt to present the material of the last 2 or 3 years with special attention to the results of different types of treatment.

The pathology, symptoms, etc. of bladder tumors has been well established, and the present literature contains little concerning the pathology and diagnosis of the more familiar types of tumor. There are, however, several interesting articles on the rarer tumors such as angiomata, leiomyomata, sarco-carcinomata, etc.

General

While bladder tumors are comparatively rare, they are by no means uncommon. according to Verhoogen (1) bladder tumors are:

- .1 to .2% of hospital cases
- .9% " autopsies
- .39% " tumor cases
- 3.0 % " urological cases
- 4.0 % " 12,500 urological cases of Young

A classification of bladder tumors is difficult and not satisfactory. There are no statements as to relative percentage of benign and malignant tumors perhaps due to the fact that the question of benignancy and malignancy of the epithelial type is unsettled.

The types of tumors found are:

Adenomata	Benign
Angiomata	"
Papillary tumors	"
a. Benign papilloma	"
b. Malignant "	Malignant
c. Papillary carcinoma	"
Adenocarcinoma	"
Squamous cell carcinoma	"
Basal cell carcinoma	"
Sarcoma	"
Fibroma	Benign
Lipoma	"
Leiomyoma	"
Dermoid cyst	" & Malignant
Teratoma	" " "
Chondroma	"
Myxoma	"
Retrovesical tumor	Malignant

Clinically, tumors can be divided into:

1. Growths projecting well into bladder.
2. Sessile growths projecting less into bladder spreading laterally on the mucosa.
3. Infiltrating growths which penetrate all layers of the bladder (1).

During the past few years, there has been more general unanimity of opinion in that all epithelial tumors of the bladder are potentially malignant (5). This characteristic has a most important bearing on the method of treatment chosen.

1. Adenoma: are benign but may play a part not yet demonstrated in the genesis of adenocarcinoma. Literature contains isolated reports. No percentages given. In general, found near the vesical orifice. Glands resemble those of prostate. Often mistaken for median lobe hypertrophy of the prostate. Found in females as well as males (1).

2. Adenocarcinoma: rare 1 or 2% of all bladder tumors. Possibly arise from some small group of glands as the adenomata (1).

3. Hemangioma: probably rarest of all neoplasms of bladder. Ballinger (12) found only 16 cases in literature since 1851.

In 11 of these cases, ages are given and range from 2 to 76 years. The ages are: males 28, 29, 54, 64, 76; females 7, 11, 17, 19, 19. Note lower age of females. Unknown 2.

Some of the reported cases were inoperable, others good results obtained from excision and fulguration. Are situated in mucosa, usually in fundus.

Young warns that varices of bladder occur frequently in conjunction with varices elsewhere; pelvic veins, etc., but should be distinguished from hemangiomatous new growths.

4. Sarcoma (8, 1): All authors agree that it is relatively rare:

Albarran	2	out of	89	bladder	tumors
Caulk	1	"	"	303	" "
Gardner	7	"	"	702	" "
Geraghty	2	"	"	180	" "
Scholl	1	"	"	262	" "
Watson	22	"	"	635	" "

Steinmetz, however, found 13 in 32 bladder tumors of children. Munwes concluded from his study that 4.5 of malignant bladder tumors were some type of sarcomata (all quoted by Gabe).

May occur at any age but are apparently more frequent in the very young and in the aged than in middle life. Begin beneath epithelium. They may, however, push the mucosa before them and project into the bladder as sessile growths (1). Commonest at base of trigone. However, there is no uniformity of opinion as regards this. Albarran states that sarcomata arise more frequently on the anterior bladder wall, while Caulk states that sarcomata are localized entirely in the trigone (8).

Young states that the commonest sarcoma in the bladder region is the retrovesical sarcoma but the extensive growth elsewhere, which has occurred before bladder invasion, will be made out before the tumor in the bladder. Some are pedunculated but most of them have a broad base.

Many varieties of growth have been recorded of which the following list is practically complete: alveolar sarcoma, angiosarcoma, fibrosarcoma, lymphosarcoma (metastatic?), myxosarcoma, round cell sarcoma, spindle-cell sarcoma (by far the most common). Besides these, sarco-carcinomatous growths are described, one of which is presented by Gabe (8).

Young presents a case in which the intravesical tumor removed showed microscopically a "beautiful picture of spindle-cell sarcoma". Later, however, the patient, in whom the tumor recurred rapidly, passed a small fragment of typical papillary carcinoma. Verhoogen (1) calls attention to similar cases. He believes that carcinoma cells when packed together in a certain way, may be elongated and take on a fusiform shape suggesting spindle cell sarcoma. Young concludes that one must be very conservative in making a diagnosis of sarcoma of the bladder, especially if it be the spindle cell type. Most of the mixed types of mesoepithelial tumors are thought to arise from allantoic remains.

Munwes (8) states that sarcoma of bladder is a rapidly growing exceedingly malignant tumor. It may do one of two things. It may infiltrate the whole bladder wall and extend into the surrounding organs without breaking through the mucosa or it may grow into the lumen as a bulky irregular mass.

Opinions differ as regards to metastasis. The general concensus of opinion, according to Gabe, is that the tumors do not metastasize early.

Albarran found 7 in 53 cases.
 Concetti " 1 " 42 " in children.
 McCarthy thought metastasis was frequent in lungs and pleura.
 Munwes said metastasis occurred in 50% of cases.
 Cecil found 31 in 143 cases.
 Mixer denied occurrence of metastasis (for ref., see Gabe).

There is nothing characteristic of the history or diagnosis to differentiate the sarcomata from other tumors.

Prognosis: After operation, the course, as a rule, rapidly fatal. Munwes found that 38 out of 69 cases died shortly after operation and that only 3 remained alive for periods varying from 5 - 13 years.

According to Gabe, there are only 8 recorded cases. This is mainly due to late diagnosis and rapid growth and resistance of most of these tumors to radium or x-ray.

Lazarus and Rosenthal (7) present a study of myxosarcoma. The only added feature presented is that the frequent occurrence in Young's subjects suggested an embryonal origin. Results obtained by any treatment were extremely unsatisfactory, reported mortality being 90%. X-ray has some effect on tumor. Total cystectomies offer the best possibility of cure.

5. Benign tumors of the bladder (9,1).

a. Fibroma. Young found no cases in his series of bladder tumors (4% of 12,500 urological cases - 500 bladder tumors). May be hard (fibromata dura) and soft (fibromata molle). Definite tendency for pedicle formation.

b. Lipoma rare - apparently only found at autopsy.

c. Leiomyoma. Ordinarily microscopic picture like that of uterine myoma. Sarcomatous changes may occur. Of 740 cases of bladder tumor in literature, 19 were myomata. On the other hand, Young found none in 500 cases. Usually vary from size of pea to (over).

6. Papillary tumors: including benign, malignant and papillary carcinoma (1).

By far the greatest number of all tumors. Young states that no statistics on the exact proportion but approximately 90% of all bladder tumors are of this type. Whereas, the recent literature contains many reports about the rarer tumors, heretofore described, there is little that can be added to Young's description of this group of tumors published in 1926. He states that every malignant papilloma probably begins as a benign papilloma, and the malignant change may occur almost as soon as the tumor appears.

The age of the patient evidently has a great deal to do with the type, (younger individuals are more apt to be benign).

In benign papilloma, the main points to look for are:

1. Uniform thickness of epithelial layer.
2. Regular, orderly arrangement of epithelial cells.
3. Uniformity of nuclei.
4. Absence of mitotic figures.
5. Absence of fusion of the papillae.

6. Absence of any invasion into the bladder wall. (Our experience has been that this last is the most important factor of all. Naturally, it is difficult to obtain the base of the tumor at biopsy and in many of the borderline tumors it is almost impossible to determine the type of tumor without a base to section. This accounts for some of the hesitation a pathologist sometimes presents when attempting to determine the benign or malignant character of these tumors.)

Malignant changes, according to Young, are characterized especially by the following features:

1. Thickening, generalized or localized of the epithelial layer.
2. Loss of regular order of cells.
3. Lack of uniformity of nuclei.
4. Form between epithelial layers of adjacent papillae.
5. Infiltration at base.

Some confusion may arise in discussing papillary carcinoma. The only difference from this and malignant papilloma is that the papillary carcinoma has a greater amount of infiltration into the bladder wall. Many feel that if the tumor is on a definite long pedicle it is benign but Young states that grossly the change may be imperceptible.

7. Epithelioma. The remaining types of epithelial tumors are the

squamous and basal cell carcinoma. No notes are found as to relative frequency. Tumor tends to spread along surface. Ulceration is the rule (early). Tend to metastasize earlier than papillary tumors.

8. Neoplasms primary in bladder diverticulæ.

Several recent articles call attention to this type of tumor growth and mention the difficulty of diagnosis. LeCompre presents a case and states that previously he had considered neoplasms primary in vesical diverticulæ to be comparatively common. He could find, however, only 39 cases reported in the literature. Age incidence, symptoms, etc. were similar to those of neoplasms of bladder itself.

The difficulty in diagnosis is shown in that recognition was made by cystoscopy in only 10 out of 28 cases. Cystograms in 14 cases have shown filling defects in only 6. Diagnosis is simple if tumor can be seen protruding from diverticulous orifice. In view of very low percentage of findings by cystoscope and cystogram, it does not appear safe to LeCompre to consider any diverticulæ sac to be free from tumor if any symptom or sign of urinary disease is present.

Symptoms and diagnosis of bladder tumor are well known and recent literature adds nothing.

Age and Sex: Males predominate markedly, various figures 92 - 8, 66 - 33, and 80 - 20. Average age between 40 and 69 years.

Treatment: It is in regard to treatment that most of recent literature is concerned. The method of treatment can best be studied by presenting results obtained by different authors. Counsellor and Walters (2) have recently reviewed 165 cases in which the patients lived 5 years or more following various surgical procedures. At the Mayo Clinic from 1910 to 1927, 600 malignant tumors of the bladder were treated by various surgical procedures. In this group, 165 (about 28%) were cured for 5 years or more. 67 (41%) of the 165 patients have had recurrences but 42 of the 67 who had recurrences are living and free from symptoms.

The choice of operation is determined principally by the site, extent and degree of malignancy. It is known that those situated at base of bladder are more malignant than those on lateral walls or dome and the latter are more amenable to surgical treatment.

1. Resection or excision - 74 patients treated in this way. 28 (38%) had recurrences.

50 patients	lived	5 to 10 years
17	"	" 10 yrs. or more
7	"	" 15 to 20 years

2. Resection, excision and other surgical procedures (2) were used in treating 70 of the 165 patients. 33 (47%) had recurrences.

35 patients	lived	5 - 10 years
25	"	" 10 yrs. or more
6	"	" 15 - 20 years
4	"	" 20 yrs. or more

Although recurrences are more frequent than in those in whom just resection was used the length of life was considerably longer.

3. Transvesical electro-coagulation (diathermy) was used in treating certain tumors of the bladder, mostly infiltrating type confined to base of the bladder and considered non-resectable. 17% were treated by this method.

Recurrences - 29%

16 of 17 patients lived 5-10 years.
1 patient lived more than 10 " .
83% of these 17 patients are living and free from urinary symptoms.

From this it would seem that diathermy is a very effective means of treating not only the more malignant inoperable lesions but also those more favorably situated and less malignant.

4. Cystostomy (palliative) with subsequent radium is justified. Of 2 patients so treated, one lived

5 years and the other more than 15 years. Total cystectomy with transplantation of the ureters was performed in 2 patients. There has been no recurrence and both are living, one more than 5 years and the other more than 20 years.

The grade of malignancy was studied in 151 of the 165 cases. 63% were of less malignant type. It is interesting that the grade of malignancy seems to have been somewhat prognostic.

76%	grade	I	are	living.
67%	"	II	"	"
66%	"	III	"	"
62%	"	IV	"	"

The high percentage of grade IV living indicates the importance of treating all malignant lesions of the bladder.

The study of recurrence according to grade of malignancy reveals a rather uniform percentage of recurrence of tumors of all grades. It seems that recurrences would develop in a variable percentage of cases, regardless of the degree of malignancy, however, recurrence after radical excision or electrocoagulation of a growth of low malignancy is not so likely to occur as it is following the same procedure for a growth graded 3 or 4.

Another review by Smith and Mintz (3) presents 150 cases from the Massachusetts General Hospital. These results are not so impressive. A comparison of the results of resection, electrocoagulation and radium implantation shows the lowest number of hospital deaths in cases treated by electrocoagulation 26%; next, those treated by resection 32%. The highest treated by radium implantation 41%. The end-result, however, from the 3 methods was approximately the same. Of the 150 cases, 117 were operated upon and of these 117 cases there were only 11 five year or more cures.

The impression one obtains from this paper is that as far as the end-result is concerned, coagulation, resection and radium are equally successful or unsuccessful.

Colston gives one of the best outlines of treatment (used at Young's Clinic).

Their experience has been that one gains a great deal more knowledge from the gross appearance of the lesion in situ than one can from microscopic examination of such a small piece as is removed for biopsy.

They divide the tumors into 3 types:

1. Pedunculated tumors which are usually not infiltrating but may rarely be infiltrating.

2. Sessile tumors infiltrating or non-infiltrating.

3. True infiltrating tumors.

During the last 10 years they have treated pedunculated tumors by fulguration and surface application of radium. Their results have been gratifying. Even with large pedunculated tumors, the treatment is often successful. Sessile tumors are treated likewise. For true infiltrating tumors where resection is possible, it is done. Their statistics show that where resection is possible, the ultimate result is far superior to any other. Deep x-ray is an important adjunct.

Gunsett (4) reports 42% 5 year cures in 26 patients treated for carcinoma of bladder. Feels that extensive tumors should first be treated by deep x-ray; then electrocoagulation should be used to destroy remaining tissue.

Chwalla is of the opinion that all carcinoma of bladder with the exception of those involving the base or the neck should be totally resected. He has obtained an 8 year cure in 40% of cases.

From the material presented, it is our opinion in general that application of radium with fulguration offers the best result in so far as pedunculated growths are concerned and that excision is best as far as true infiltrating growths are concerned. Total cystectomies have been successful but mortality is high.

Impressions:

1. There has been some improvement in treatment of vesical tumors. (not marked).

2. Bladder tumors represent 3 - 4% of all urological cases.

3. During past few years, there has been more general unanimity of opinion that all epithelial tumors of the bladder are potentially malignant.

4. Papillomatous tumors are by far the most frequent type (about 90% of all tumors). They may be benign, malignant or papillary carcinoma (this being a more infiltrating tumor than the malignant papilloma).

5. The benign tumors of the bladder, fibroma, adenoma, lipoma, etc. are rare.

6. Males predominate about 8 - 2.

7. Method of treatment depends upon a very careful selection of cases. In general, pedunculated tumors seem to be best treated with application of radium and fulguration. Whereas, the infiltrating type of tumor is best treated by excision with a wide margin.

8. Sarcomata are particularly resistant to x-ray and radium. Mortality of myxosarcoma is about 90%. Total cystectomy offers best result.

9. Squamous cell carcinomas tend to metastasize earlier than the papillary tumors.

10. The grade of malignancy is prognostic as to fatal outcome but is evidently not prognostic as regards recurrence.

Twenty-seven cases of bladder tumors are found in cross index of Minnesota General Hospital from Jan. 1, 1932 to January 1933. Average age 59, oldest 77, youngest 18. 19 males, 8 females.

1. Benign papilloma - excision (at time of prostatectomy - no recurrence 4 months).

2. Benign papilloma - fulguration - result?

3. Papilloma - fulguration - recurrences fulgurated six times since 1932.

4. Papilloma - fulguration - no recurrence 2 months.

5. Papilloma - fulguration - result?

6. Malignant papilloma - excision - recurrence 9 months - fulguration; recurrence 14 months - fulguration.

7. Malignant papilloma - deep x-ray - result?

8. Papillary carcinoma - radium, then fulguration - improved 8 months.

9. Papillary carcinoma - radium, deep x-ray - improved 3 months.

10. Papillary carcinoma - excision - recurrence 18 months, fulgurated; recurrence 22 months, fulgurated; recurrence 2½ years, fulgurated; recurrence 3 years.

11. Papillary carcinoma - x-ray - result?

12. Papillary carcinoma - excision, radium - metastasis 5 months.

13. Papillary carcinoma - fulguration, radium x-ray - recurrence 1½ year.

14. Squamous carcinoma, grade III - excision, radium - metastasis 7 months.

15. Squamous carcinoma, grade II - fulgurated, radium x-ray - recurrence 5 months, radium fulguration; recurrence 7 months, fulgurated; recurrence 7½ months, fulgurated; recurrence 8 months, fulgurated; recurrence 12 months, fulgurated. No recurrence 14 months, but contracted bladder.

16. Squamous carcinoma, grade IV - excision - recurrence 2 months, radium fulguration; recurrence 7 months, metastasis to ischium; died 9 months.

17. Squamous carcinoma, grade III - none.

18. Squamous carcinoma, grade III - fulguration - no recurrence 2 months.

19. Squamous carcinoma, Grade III - fulguration - recurrence.

20. Carcinoma - suprapubic cystostomy, fulguration - improved 4 months.

21. Carcinoma - no treatment.

22. Carcinoma - deep x-ray.

23. Carcinoma - x-ray and radium - died 2 years following 1st implant.

24. Carcinoma - none - died 4 months.

25. Carcinoma, grade IV - fulgurated - result?

26. Carcinoma, grade III - excision - died of bronchopneumonia.

27. Carcinoma, grade III - excision, fulguration - dead (9th year of disease).

No impressions can be obtained as to final outcome as the cases are too recent. However, one can see the

type of treatment used here. In general, fulguration with radium implants and x-ray and excision in selected cases has been used. This is in accord with the opinion of urologists in general. One case in which frequent radium implants and fulguration had been used brings out an interesting sequence to this type of treatment, i.e. the contracted bladder. Only one operative death is noted, due to bronchopneumonia (following excision of the tumor). Recurrence seems to occur just as readily in those cases in which radium and fulguration was done.

III. CASE REPORT *Shannon & Tegner*

CARCINOMA OF THE BLADDER, AND ACUTE BRONCHOPNEUMONIA.

Path. Pearson.

Case is that of white male, 69 years of age, admitted to Minnesota General Hospital 2-23-32, expired 3-3-32 (9 days).

Hematuria

1-28-32 - Upon urination, noticed urine to be clear at first and then contained few drops of blood. After this, blood present in urine. Consulted physician who prescribed some medicine. Noted frequency every 2 or 3 hours and nocturia. Pus cells on urine examination.

Past History

States that 25 years ago he had an attack of Bright's Disease, confining him to bed for 1 week. Also slight dysuria and hematuria. About 4 years ago, had bladder trouble, frequency and difficulty in holding urine.

Admitted

2-23-32 - Physical examination: well-developed and fairly well-nourished, white male. Heart - blood pressure 130/70; murmur at apex during systole. Abdomen - no tenderness, masses or rigidity; liver and spleen not palpable. Rectal - prostate seems somewhat enlarged. Laboratory: Blood - Hb. 90%, wbc's 8,400, Pmn's 73%, L 24%, M 1%, E 2%. P.S.P. - 75%. Urine - gross blood.

K.U.B.

2-24-32 - Both kidneys within normal

limits, size, shape and position. No evidence of stone in urinary tract. Moderate chronic hypertrophic arthritis of lumbar spine. Has what appears to be an anomaly of the inferior articular process of the 3rd lumbar vertebra. Conclusion: Negative urinary tract. Progress: No residual urine.

Cystoscopic examination

2-25-32 - Under cocain anesthesia, a direct Braasch cystoscope was introduced into the bladder which showed moderate amount of inflammation. Both ureteral orifices appear normal, urine was seen spurting from both sides. In dome of bladder (by marked compression of cystoscope) could be seen a tumor mass about 1.5 to 3 cm. in diameter which is necrotic, very definitely localized with a rather broad base. In this position it would make fulguration difficult and excision is the treatment of choice. Impression: Carcinoma of urinary bladder. Returned from operating room. Very deep sleep. 1:30 P.M. - Insists on getting up. Put in restraints. Disoriented. 7 P.M. - Seems more quiet and self controlled. Fairly comfortable. No complaints.

Operation

2-27-32 - Preoperative diagnosis: Carcinoma of fundus of bladder. Anesthesia - spinocain but rather incomplete and ethylene had to be given. Incision - midline umbilical (sub). Operative procedure - Through skin incision, rectus sheath was cut down, divided, and muscles split. Transversalis fascia covering peritoneum partially divided, isolating bladder and peritoneum. Due to fact that tumor was at fundus, it was felt best to extraperitonealize bladder. This was done by deliberately incising peritoneum, then separating peritoneum from lower surface of bladder, and in this manner a small elliptical defect in peritoneum was created. This was easily sutured, and entire bladder was extraperitonealized by maneuver.

Tumor was then palpated in dome of bladder. Packs put about it, and bladder was deliberately incised, and the mercurochrome solution, which had

been placed in bladder prior to operation, came out. It was aspirated, and tumor cut around with fairly wide margin. There were 2 carcinomas of bladder, removed from one another by a short distance, both removed in same specimen. Tumors were ulcerative lesions. This created defect in apex of bladder transverse to axis of bladder, going its entire width.

Tube was then placed in bladder, and with fine triple 0 plain catgut bladder was reapproximated with running stitch. This suture line was inverted by another running stitch, and 3 or 4 interrupted sutures were placed over it. A catheter was anchored in the bladder. The wound was then closed. Left operating room in good condition. Preoperative examination of urine - specific gravity 1.015, 1+ albumen, few rbc's. Pulse of good quality. Hyperventilated. Pathological examination of tissue removed at operation: Diagnosis - squamous carcinoma of bladder, grade III.

Reaction

2-29-32 - Bladder irrigated with boric acid solution. Restless. Morphine sulphate gr. 1/4 twice. Catheter draining slowly. Very restless. Tries to get out of bed. Paraldehyde 1 oz. Medication took effect almost instantly. Color very good. Finger-nails somewhat cyanotic. Throat aspirated. Atropine gr. 1/100 twice. Oxygen tent started. Pulse somewhat rapid, about 144. 2 P.M. - Alphalobelin times two. Temperature 105.2. Still has mucus in throat. 2000 cc. normal saline given intravenously. Chloral hydrate gr. xxx(R). Interne's note: There are now rales in both lungs and much mucus in pharynx.

Pneumonia

3-2-32 - Oxygen continuously. Suction in throat. Pulse 112, good quality. Respirations little easier. Very restless. 1000 cc. normal saline given by hypodermoclysis. B.U.N. - 30 mgm. Portable x-ray - chest - extensive density throughout left lower lobe, fairly characteristic of hypostatic form of pneumonia. Conclusions: Hypostatic pneumonia. Pulse rapid. 100 cc. 10% glucose again.

Exitus

3-3-32 - Pulse 112 and somewhat stronger. Oxygen continuously. Suction used. Tem-

perature 105. Pulse 124, Respirations 44. 12 noon - Temperature 105.4. Pulse 128. Respirations 44. 1500 cc. normal saline intravenously. 7 P.M. - respirations very shallow. Caffeine sodium benzoate gr. 7½ given. 7:05 P.M. - expired.

Operation Wound

Autopsy

Body is well-developed, well-nourished, white male, 69 years of age, 176 cm. in length, weighing approximately 150 lbs. Rigor present. Hypostasis purplish and posterior. No edema or jaundice. Some cyanosis of finger-nails and lips. Pupils 4 mm. each regular. Very recent suprapubic wound, 18 cm. in length. Rubber drains through center of communication with bladder.

Normal

Peritoneal Cavity free of infection. No fluid in cavity itself. Wound explored and found quite normal. There is, however, some hemorrhage into subcutaneous tissue under peritoneum in region of bladder and up in both gutters.

Fluid

Each Pleural Cavity contains about 200 cc. clear straw-colored fluid. Pericardial Sac contains minimal amount of fluid.

Heart 360 grams. Valve edges free and normal. Chambers normal and show no hypertrophy. Coronary arteries sclerotic throughout, about 2+. No interference with lumina however. No area of fibrosis.

Pneumonia

Right Lung 1100 grams, Left 1175. Both lower lobes of lungs entirely consolidated, giving appearance of confluent type of bronchopneumonia. Pus can be expressed from smaller bronchi and small, raised areas can be palpated.

Swelling

Spleen 180 grams. Capsule grayish and wrinkled. Pulp rather soft and red.

Liver 1700 grams. Cut surface shows

moderate amount of cloudy swelling.

Gall-Bladder and ducts, Gastro-Intestinal Tract, Pancreas and Adrenals normal.

Right Kidney 210 grams, Left 250. Capsules strip quite easily and reveal somewhat irregular surface due to old scarring. This is interpreted as an arteriosclerotic type of kidney.

Out

Bladder moderately congested. Mucous membrane shows some edema. Tumorous mass seems well removed from bladder itself. Bladder is removed in toto to be sectioned for any evidence of malignancy--however, none can be seen grossly.

Prostate somewhat enlarged.

Organs of Head and Neck - not examined.

Diagnoses:

1. Carcinoma of bladder, grade III.
2. Congestion and edema of bladder.
3. Recent cystotomy, suprapubic.
4. Marked bilateral confluent bronchopneumonia.
5. Coronary sclerosis, 2+.
6. Hydrothorax.
7. Recent operative wound.
8. Multiple puncture wounds.

IV. NEWS

1. Honored. today are the men and women who have served their state for more than 30 years. Included in the list of 56 are 16 members of the faculty of the Medical School. A special All-U convocation will be followed by a luncheon at the Union. Congratulations and best wishes.

Dr. Arthur E. Benjamin, 1894
Assistant professor obstetrics and gynecology.

Dr. James T. Christison, 1895
Associate professor of pediatrics.

Dr. Alexander R. Colvin, 1900
Associate professor of orthopedic surgery.

Dr. William H. Condit, 1900
Assistant professor of obstetrics and gynecology.

Dr. Charles A. Erdmann, 1893
Associate professor of anatomy.

Dr. James F. Gilfillan, 1903
Associate professor of medicine.

Dr. Thomas B. Hartzell, 1892
Lecturer, department of medicine.

Dr. Jennings C. Litzenberg, 1900
Professor and Head, department of obstetrics and gynecology.

Dr. Arthur T. Mann, 1900
Associate professor of surgery.

Dr. Walter R. Ramsey, 1899
Associate professor of pediatrics.

Dr. Harry P. Ritchie, 1897
Associate professor of surgery.

Dr. John T. Rogers, 1895
Associate professor of surgery.

Dr. John L. Rothrock, 1895
Professor of obstetrics and gynecology.

Dr. Henry L. Ulrich, 1902
Professor of medicine.

Dr. S. Marx White, 1898
Professor of medicine.

Dr. Franklin R. Wright, 1896
Associate professor and director division of urologic surgery.

2. Weeks:

"National Baby Week,"
"National Egg Week," "Candy Week,"
"Pharmacy Week" and "National Apple Week" are among the 213 special weeks, days, legal and religious holidays and anniversaries listed for 1933 in a calendar published by The National Retail Dry Goods Association. Others are "National Raisin Week," "National Poetry Week," "National Picture Week." Among the choicest of 1933's special "days" are "Share-with-Others Day," "Make a Will Day," "Own Your Own Home Day," and "National Fish Day."

First place this week to Child

Health Day, May 1st - with local Health Department-Medical Society drive for vaccination against diphtheria and small-pox; and National Hearing Week (highly recommended) which sponsors release of the deafened from social exclusion (real or fancied), prevention of deafness, and a drive against quacks who exploit these people.

3. Meetings

The American Society for Clinical Investigation will meet at the Willard Hotel, Washington, D. C. on Monday, May 8th, 1933. Minnesota General Hospital will be represented by:

"Studies in the Origin of Plasma Proteins" - H. A. Reimann, G. Medes, and L. C. Fisher;

also by:

"Clinical Manifestations of Hypo- and Hypermagnesaemia - A. D. Hirschfelder.

The Interurban Clinical Club will meet at the University of Chicago Clinica, Chicago, Ill., on Saturday, May 6, 1933.

The Association of American Physicians will meet at the Willard Hotel, Washington, D. C. on May 9th, 10th, and 11th, 1933.

The Minnesota Society of Internal Medicine will meet Monday, May 15th, at the Eustis Amphitheatre. Among others, Doctors Shapiro, Thos. Ziskin, Geo. Fahr, C. A. McKinley, Moses Barron, Reuben Johnson, Don McCarthy will speak.

V. MEETING

Date: April 27, 1933

Place: Interne's Lounge, 6th Floor, West Building

Time: 12:13 to 1:36

Program: Pulmonary Arteriosclerosis.

Present: 94

Discussion: L. G. Rigler
H. L. Ulrich

Theme: Demonstration:
"Keeping Fit" - Rosen.

L.G.R.: Film taken originally with idea of determining if anything present might be related to asthma. Showed unusually large heart which we were somewhat at a loss to account for because this is unusual with asthma. Most of the cases of asthma have a very small heart which is centrally placed. In addition there is a low diaphragm indicating presence of emphysema. We thought he might have some areas of bronchiectasis at the base. The pulmonary arteries were somewhat enlarged, but probably not much more than is seen in ordinary cases. Heart then studied with a view of ruling out heart disease. Heart was large, measuring almost 19 cm. in transverse diameter. Hesitated about the diagnosis. Ordinarily, however, one gets considerably more bulging in this region (conus). Esophagogram done. No displacement of the esophagus. What little was there was out of proportion to the heart shape. No evidence of mitral disease. Lateral view gives impression of little enlargement in the left ventricle. Finally concluded atypical heart, possibly aortic disease. Plate taken several days before he died. This shows little or nothing in the left base, pneumonia probably just beginning at the time.

H.L.U.: (First slide) One of the cases which we observed. Shows dilation, thickening of enlarged vessels running from hilus. Atherosclerosis and dilatation. (Second slide) Cross section of a case of pulmonary arteriosclerosis showing again that marked thickening and dilation of the vessels. All these cross sections are vessels hypertrophied and full of thrombi. Patient

died with thrombus 3 cm. from aortic valve.

The way these people die is either from acute heart failure, thrombus, or epileptic fit. (Third) Here is specimen from another case (a beautiful museum specimen) showing same atherosclerosis and dilation. First case we called congenital heart disease patent ductus arteriosclerosis, primary pulmonary arteriosclerosis.

(Fourth) Cross section of one of the vessels of man dying from thrombus. Also noticed certain amount of inflammatory reaction.

Man had changes in the bronchial vessels too. (Fifth) Here is one in which peripheral small vessels showing intense hypertrophy of the intima and a good deal of edema. Pathologists think it compensatory change due to hypertension. (Proliferative process) Proliferative process probably due to infectious primary process? Pathologist will not commit himself on that type of sclerosis.

(Sixth) Another slide showing the same thing in larger magnification. From first case several areas of lungs showing arteriosclerosis in lungs. Again looks like proliferating process, does not look like arterioles in the hypertensive kidney (mechanical reaction, irritation?) (7)

Another one. Practically obliterated. From museum specimen case. (8) All about the same. Intense obliteration almost obliterating form of hypertrophy of small arteries.

Clinically in this condition the thing that I have learned from observing these cases is the fact that you can always tell a primary by a simple clinical investigation. When you have evidence of cardiac decompensation of a patient such as ascites, enlarged liver, edema of the extremities, and you don't get any moisture in the chest suspect and almost guarantee man has pulmonary arteriosclerosis if right sided heart disease is present. Secondary group have moisture in the chest. Findings in the chest - pulsating, intercostal space which the French described only in the left interspace but which I picked up all over in the chest. So far we have not had a postmortem in any of these patients described with this sign. Until we do we cannot say whether they are absolutely due to this particular phase although we think they are.

Question:

What is relation between sinusitis and osteomyelitis of walls? Do not know.

Discussion:

Diagnostic criteria for pulmonary.

Gertrude Gunn
Record Librarian