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DISCUSSION (Abstract)

Dr. John H. Musser, New Orleans, La.—I was particularly impressed with the roentgenograms of the essayists, which illustrate compression of the esophagus. That was, to me, something entirely new. I never realized or appreciated that enlargement of the left auricle could actually cause as complete compression as apparently it does. I wonder whether the partial occlusion that occurs is severe enough to require treatment.

The Doctor has spoken of the symptoms that accompany acute coronary occlusion, and these are, of course, familiar to every one. The pain is often in the upper abdomen and associated with vomiting, the patient dies promptly and the cause of death is put down as acute indigestion.

A thing which should be stressed in coronary occlusion is the persistence with which the gastric symptoms will last after the initial onset. It is not a question of a few hours, or a few days, but weeks and months afterwards. The man who has had coronary occlusion will suffer with indigestion with remarkable frequency although he has never had indigestion before, and it is associated with a complete lack, in years afterwards, of any evidence of cardiac insufficiency.

There is another phase of this subject, namely, the frequency with which digitalis is withheld from people who have heart disease because they have digestive symptoms. Time and time again in dealing with a patient who has heart disease, which is responsible for the gastric disturbance, the doctor will say, "We will stop the digitalis, because it is the digitalis which is irritating the stomach." On the contrary, the patient needs the digitalis, and the gastric symptoms will clear up beautifully if sufficient digitalis is given to relieve the passive congestion of the stomach.

I believe, despite these figures of Dr. Cabot, that almost as many patients who have tuberculosis consult physicians for gastric symptoms as for gastric symptoms secondary to cardiac disease. These symptoms are very

common, and we must always be on the lookout for them. Examine the lungs and heart for an explanation of many gastric disturbances.

Dr. Harine (closing).—I am glad Dr. Musser emphasized the importance of coronary thrombosis. Apparently it is a condition which we meet quite frequently, and fairly often there are signs and symptoms which will take the patient to the gastroenterologist. Especially is it true that an occlusion of a branch of the right coronary will simulate an abdominal condition.

CARCINOMA OF THE PROSTATE: A CLINICAL AND PATHOLOGICAL STUDY*

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The ultimate prognosis in most cases of carcinoma of the prostate is distinctly unfavorable on account of the difficulty in making an early diagnosis. Anyone familiar with the pathological anatomy of this condition will readily understand that when any degree of urinary obstruction has arisen the extension of the growth will be found to have progressed beyond the limits of the capsule or into the seminal vesicles so that a complete removal is impossible.

Unfortunately, cases suitable for radical removal of the entire growth are seen comparatively rarely, usually as a result of the demonstration of a nodule in the prostate found on routine physical examination. In some few of our cases which were subsequently found suitable for the radical operation, early urinary obstruction of varying degree was present.

Since the founding of the Brady Urological Institute, a diagnosis of carcinoma has been made in 1,040 cases. Of this number only 36 cases were found suitable for the radical operation, although 58 cases of early carcinoma were operated upon with a diagnosis of benign hypertrophy.

From a clinical point of view these cases can be divided as follows:

- (1) Cases suitable for radical operation
- (2) Cases which are too extensive for radical operation, but which have not developed urinary symptoms, and

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(3) Cases which are too extensive for radical operation and which have developed varying degrees of symptoms. *Group 3* can be further subdivided.

(a) Those in which symptoms can be relieved by radium and x-ray

(b) Those cases with obstruction which may be relieved by intraurethral methods, and

(c) Those cases in which a conservative perineal prostaticectomy is necessary to secure relief.

A brief consideration of some of the essential details of the origin and development of prostatic carcinoma is necessary completely to correlate the pathological anatomy with these clinical divisions. Authorities in this country are for the most part unanimous in agreeing with the statements of Young and Geraghty that prostatic carcinoma almost invariably has its origin in the posterior lobe.

Table 1
OPERATIONS ON PROSTATE GLAND

Perineal prostaticectomy for benign prostatic hypertrophy	2550
Suprapubic prostaticectomy for benign prostatic hypertrophy	250
Punch operation for bar or contracture	539
Radical perineal prostaticectomy for carcinoma	36
Subtotal radical perineal prostaticectomy for carcinoma	14
Conservative perineal prostaticectomy for carcinoma	250
Perineal prostaticectomy (path. diag. carc.)	70
Punch operation for carcinoma	36
Suprapubic prostaticectomy (path. diag. carc.)	2
Perineal prostaticectomy for carcinoma (path. diag. tb.)	4
	3751

The pathological material from 3,176 prostatic operations, exclusive of punch operation, has been studied. In 356, or 11.2 per cent, of cases a diagnosis of malignancy was made. In 35 specimens removed at radical operation the entire prostate was available for study and showed the posterior lamella involved with carcinoma in all cases; the posterior lamella alone was involved in 10 cases; both lateral lobes in addition to carcinomatous involvement of the posterior lobe in 12 cases; the posterior lamella and the right lobe were involved in 3 cases; the posterior lamella and left lateral in 5 cases; in one specimen the entire prostate, including the anterior commissure, was involved.

Table 2
RADICAL PERINEAL PROSTATECTOMY
Location of Carcinomatous Growth

	Cases
Post. lamella without further involvement	9
Post. lamella with involvement of both lateral lobes	12
Post. lamella with involvement of right lateral lobe	3
Post. lamella with involvement of left lateral lobe	5
Post. lamella with involvement of entire prostate	1
Post. lamella with invasion of seminal vesicles	6

Three hundred and twenty specimens showing carcinoma were removed by conservative perineal prostaticectomy, 14 by subtotal radical prostatec-

tomy and 2 by the suprapubic route. Obviously there was very little, if any, of the posterior lamella attached so that information as to the origin of carcinoma had to be based on the location of involvement of the portion removed and on the microscopic study of the specimen. In those cases of carcinoma unassociated with benign prostatic hypertrophy (43 per cent of our series) it was difficult if not impossible to form an opinion as to the origin of the tumor, since there was no false capsule separating the mucosal or submucosal from the true prostatic glands of the posterior lamella. Motz and Percarneau have shown conclusively that all hypertrophies of the prostate arise from mucosal and submucosal glands and it is along this line of cleavage between the submucosal and the true prostate glands that enucleation in prostaticectomy for benign hypertrophy is accomplished. In the 57 per cent of cases of prostatic carcinoma associated with benign hypertrophy we have found the posterior portion of the lateral hypertrophied lobes or the median commissural portion invaded with carcinoma. These are the portions in contact with the prostatic glands of the posterior lamella. We believe that in all of these cases as well as in the 36 cases operated upon by radical perineal prostaticectomy the carcinoma originated in the posterior lamella and from that point invaded the hypertrophied lateral lobes. There is no evidence in any of our cases that carcinoma developed from benign prostatic hypertrophy.

A special study was done on 70 cases operated upon with the diagnosis of benign prostatic hypertrophy which proved by pathological examination to be carcinoma. Carcinoma was not suspected in 44 cases due to lack of sufficient induration. Either the carcinoma lay in a thin sheet over benign hypertrophy or lay beneath a thickened posterior capsule or was so small as to avoid detection. In 4 cases a small nodule less than $\frac{1}{2}$ cm. in diameter in each case was found encapsulated within a lateral lobe of hypertrophy. In 10 cases a soft cellular type of carcinoma failed to give sufficient induration because of lack of fibrosis. Alveolar carcinoma possibly arising in the suburethral glands within hypertrophy was mistaken for benign adenoma in 12 cases.

Table 3
70 CASES OF MISSED DIAGNOSIS

	Cases
(1) True adenocarcinoma	44
(2) Adenocarcinoma in lateral lobe of hypertrophy	4
(3) Soft cellular adenocarcinoma without fibrosis	10
(4) Alveolar carcinoma	12

Dossot, in an exhaustive study, states that there is a definite relationship between carcinoma and adenoma. He distinguishes two distinct types: urethrostatic adenoid, which arises from glands of the urethra, and true cancer of the prostate. He is not in accord with our view that the majority of malignant prostatic tumors arise from the posterior lobe. He has found that carcinoma and benign adenoma are associated in 58.7 per cent of cases of cancer, which agrees with the findings in our series, in which this agreement was noted in 57 per cent of cases. Our interpretation of this finding is that carcinoma and benign hypertrophy may occur simultaneously and independently in the prostatic gland. We have 16 cases showing cancer in the posterior lamella without evidence of any malignancy in the hypertrophied lateral or median lobes. In a forthcoming paper, this subject will be discussed in detail.

Irrespective of the academic discussion which has arisen as to the origin of prostatic carcinoma, its growth, extension and metastasis are well understood. With the infiltration of the prostate, the base of the seminal vesicles and the tissue lying beneath the base of the bladder and between the vesicles becomes slowly infiltrated. The growth rarely extends beyond the apex of the prostate and only very rarely does it penetrate through Denonvillier's fascia to involve the rectal wall. This well known fact is explained by the lack of lymphatics in this thick fascial membrane. On account of these anatomical considerations the extension of the growth is limited to the upward direction.

The rapidity of growth depends on the particular type of tumor, and it may be said that the more cellular the tumor, the more rapid the extension. The question of resistance of tissue to the extension of the growth and modification of the growth by the type of tissue which is invaded is a most interesting one. It is certainly true that when the malignant cells invade the alveoli they change their character, often to a surprising degree, and apparently grow in much greater profusion and usually without definite morphology.

In some of the more cellular tumors the growth may be extremely rapid and death may supervene in a few months with widespread generalized metastasis, but in the more common type of growth where fibrous tissue is predominant the extension is commonly slow and metastasis late. The seminal vesicles may become fully invaded, but in two instances we have

noted extension along the vasa before the vesicles were involved.

Metastasis occurs at varying times, according to the type of tumor. In about 30 per cent it is present when the patient is first seen. In our series one case has been followed nine years and another seven years without the development of demonstrable metastasis. The lymph channels extending between the seminal vesicles and over the sacrum, together with the glands along these channels, become first invaded. Extension to the lumbar vertebrae, sacrum and bones of the true pelvis then becomes evident. Later metastatic deposit may be present in the lungs. It is characteristic of prostatic carcinoma that bone metastases are osteoplastic in type.

With a clear picture of the pathological process in mind, the symptoms of prostatic carcinoma can be readily understood. It will be evident that unless carcinoma exists coincidentally with benign hypertrophy, urinary symptoms will be late in their appearance because such symptoms depend on the involvement of the prostatic orifice and base of the bladder. In any event, the familiar symptoms which we have learned to associate with obstruction at the neck of the bladder will first appear and there is usually nothing in the history at that time which might give one the lead toward the differentiation between a benign and a malignant condition.

Bugbee considers that the sudden onset of acute retention in a patient who had previously noted mild symptoms of urinary obstruction is an indication that malignancy is present. However, this same clinical picture is often seen in cases of benign hypertrophy, and it has really been our experience that acute urinary retention in malignant cases only supervenes in the later stages of the disease.

Hematuria, of course, may occur, but the appearance of this symptom is also not helpful as a means of differentiation, which can be readily understood when one keeps in mind the extreme rarity of ulceration in carcinoma of the prostate. Bleeding may also occur, of course, from erosion of the engorged vessels, which are present in the mucosa over enlarged benign lobes, but bleeding has already been shown to be less frequent in cancer than in hypertrophy in our cases.

Pain is also an inconstant symptom which may occur from involvement of the vesical neck. The pain referred along the course of the sciatic nerves due to pressure from lymphatic deposits

is frequently seen in the later stages of the disease. In spite of all educational efforts, many cases are first seen only in the latest stages, when bone metastasis has become widespread. In these unfortunate individuals often severe pain is present in the lower spine, pelvis and hips.

There is no necessity to detail the well known clinical picture which arises from urinary obstruction due to interference with kidney function which may, of course, be seen in both benign and malignant types. The diagnosis is considered exceedingly difficult in the early stages and simple when the process has become extensive and is based entirely upon the results of the rectal examination. But a study of our cases shows conclusively that the presence of marked induration, even if it involves only a small part of the prostate, should be suspected and the patient subjected to perineal operation, at which inspection, palpation, excision and microscopic examination of the suspicious area can be carried out, if necessary. The demonstration of a nodule usually described as of third degree induration or even of stony hard consistency has been the basis upon which our early diagnoses have been made. Palpation of such a nodule upon a sound or cystoscope in the urethra is of great help. The differential diagnosis often presents great difficulty. A single stone in the prostate may simulate a nodule of malignant tissue, but can usually be demonstrated by the x-ray. In more extensive cases a chronic inflammatory process and tuberculosis must be excluded. In our series conservative prostatectomy has been done in three cases of tuberculosis of the prostate and seminal vesicles in which a diagnosis of malignant disease had been previously made and in one of our radical operations the same mistake occurred. In one of our cases both carcinoma and tuberculosis were present.

Considerable information of value can be obtained on examination of the internal orifice by means of the cystourethroscope. By this procedure the presence of an hypertrophied lobe may be demonstrated, but the presence of such lobes will not, of course, exclude the co-existence of carcinoma. The involvement of the vesical orifice itself or of the closely adjacent tissues gives a fairly characteristic appearance. The edges of the orifice are irregular, reddened, with small papillary projections and cyst formation, but extremely rarely will one see an actual intravesical growth. A somewhat similar picture is often

seen in long standing inflammatory conditions and in some types of contracture of the vesical orifice. When the tumor has involved the sub-trigonal region of the bladder, considerable edema, reddening and irregularity will be noted over the mid-portion of the trigone and this structure will be thickened and more prominent with a wide displacement of either or both ureteral orifices from their normal positions.

The definite classification which we use to differentiate cases of malignant disease from a clinical point of view has already been given. Cases suitable for the radical operation are those in which Denonvilliers' fascia has not become involved posteriorly and in which the process has not extended more than a short distance into the base of the seminal vesicles. A minimal amount of uninvolved tissue must be present between the ureteral orifices and neck of the bladder, and when it is found that the process has extended so far into the region of the base of the bladder that the integrity of the ureters might be jeopardized during the process of resection of the neck of the bladder, we consider that radical operation is contraindicated. Naturally, such fine distinction requires considerable judgment and accurate clinical observation of the patient.

The technic of the operation with numerous minor improvements has been detailed in the publications of Young. The preservation of as much as possible of the fine connective tissue containing the nerve supply, which crosses over the capsule especially anteriorly, and the division of the urethra as close as possible to the apex of the prostate, we consider essential to prevent urinary incontinence.

In the series of 36 radical cases there were four deaths, giving a mortality of 11.1 per cent. It is interesting to note that three of these deaths occurred in the early years, and in the last 27 cases there has been only one death. Of those cases surviving the operation the average duration of life was five years. One case is living and well 17 years after operation, one case 13 years, three lived 9 years, one dying of recurrence, five lived 7 years, of whom one died of recurrence, two lived 6 years, and one 3. Four patients have died of recurrence and four of metastasis. One is living one year with recurrence. Of the remaining cases eleven are living and free from recurrence. Seven had died of other causes, apparently free from recurrence or metastasis. It is interesting to note that only

one of these patients with involvement of the seminal vesicles has lived three years.

Young's radical operation has been condemned in some quarters. Criticism has been directed against the mortality rate which is entirely unjustified, as the above figures have plainly shown, the relatively high rate of 11 per cent in our series being entirely due to deaths which occurred when the operation was in an experimental stage. The mortality should be little, if at all, higher than that for benign prostatic hypertrophy. Others have criticised the operation on account of its dangers and poor results, emphasizing especially the presence of strictures of the urethra, persistent fistula and recto-urethral fistula.

Stricture of the urethra has come on in only one of our cases, but it was not pronounced, as instruments were easily passed, and a few dilations relieved the obstruction. The fact that strictures can be handled by simple instrumental dilatation would suffice to dispel this criticism. Persistent perineal fistula has not occurred in our series. One of the most remarkable facts is the promptness with which the anastomosis heals and the perineal fistula closes. Recto-urethral fistula has occurred four times. In two of these cases in the early stages of the development of the operation glass seeds containing radium emanation were implanted in the region of the wound. When these unfortunate results became evident the use of radium as an adjunct to the radical operation was discontinued. In one of the two remaining cases the rectum was injured at operation during removal of the seminal vesicles. The other case of recto-urethral fistula occurred spontaneously about ten days after operation without any apparent definite cause.

Young's radical operation is a rather difficult one, requiring thorough training and familiarity with the technic. If unfortunate results have occurred elsewhere and have aroused unfavorable criticism of this operation, we believe they must be due to lack of complete familiarity with the operative technic and imperfect appreciation of the anatomical structure of the perineum.

G. G. Smith has been an enthusiastic advocate of radical perineal prostatectomy and has even used the operation in cases in which the growth had extended so far that a complete eradication of the disease could not be expected. He has carried out this procedure in forty cases with a mortality of 10 per cent. Even in cases which are too far advanced for complete removal he feels that the functional results obtained

readily justify the procedure. Of this type of case, he says:

"Of the cases that lived, some I know have lived in comfort six to seven years, only to die of carcinoma-tosis at the end of that time. Very few of the cases which had recurrence had any trouble with their bladder. Control has been satisfactory in almost all."

Cases which are too extensive for radical operation, but which have not developed urinary symptoms have been treated in the Brady Clinic by radium with or without deep x-ray therapy. In a study of the literature conflicting opinions as to the efficacy of either radium or deep x-ray therapy are found. Mann states that deep x-ray therapy is only palliative and our own experience with this treatment used exclusively would seem to corroborate this statement, but we have seen great improvement in symptoms, particularly pain, resulting from judicious use of both radium and x-ray. Barringer, in numerous papers, has emphasized the fact that in 30 per cent of cases a reasonable increase in the expectation of life can be obtained. Our own experience would seem to corroborate this position.

In many of our cases no appreciable effect could be noted on the probable duration of the disease in spite of radium and x-ray. Our efforts in this type of case have been directed with the purpose in mind of stopping the progress of the disease and to prevent, if possible, development of urinary obstruction and to delay the deposition of metastatic deposits. From our experience with cases which have been treated by radium therapy with or without deep x-ray we feel entirely convinced from clinical observation that the progress of the disease can be stopped and that many times a definite retrogression, usually demonstrable on rectal examination, occurs. We have numerous charts with pictures of the condition found before treatment which when contrasted with the findings after radium treatment can admit of no other interpretation to an unprejudiced mind. The question of the prevention of metastatic deposit is, of course, an extremely difficult one and it is practically impossible to obtain accurate scientific data on account of the fact that different types of tumor differ greatly in their propensity to spread by metastasis. We have seen an occasional case which has received no treatment and yet has shown no metastasis over a period of seven years.

It has been our custom to administer radium by exposure through the rectum and also through the urethra and bladder neck to give a cross-fire effect, using the instruments described by

Young. Care must be taken, of course, to limit the dosage in order to prevent rectal injury. In most cases we do not exceed 800 milligram hours per rectum and 800 milligram hours per urethra and bladder, limiting the exposure to 200 milligram hours at each sitting. When this series of treatments is finished we have introduced two or three radium needles, screened with 2 mm. of platinum and each containing 10 milligrams, directly into the gland, leaving these needles in place until the required dosage has been obtained, the total dosage never exceeding 2,000 milligram hours. Another examination is then made in two or three months' time and usually a shorter course of treatment is again given, and when metastatic deposits are present a course of deep x-ray therapy, consisting of daily exposures over a period of about three weeks, is given in conjunction with radium treatment. Young and Waters have emphasized the value of this combined treatment, especially in causing reduction in the size of the local tumor, the cessation of hemorrhage and the relief of pain from obstruction or metastatic deposits. It is amazing how rapidly bleeding from the posterior urethra will cease after one or two applications of radium to the posterior urethra.

Cases which are too extensive for radical operation and which have developed varying degrees of obstruction require careful selection and study in order that appropriate therapeutic measures may be instituted. It should be our objective to handle these cases in such a manner that normal urinary function is preserved as long as possible. In cases which present only moderate degrees of urinary obstruction such as slowness of stream, slight difficulty and frequency, the progress of the obstruction can often be prevented by simple progressive dilatation of the prostatic orifice and in addition, by radium therapy, the extension of the growth may be prevented or the growth itself may retrogress so that normal urinary function may be restored in many of these patients by careful choice of simple therapeutic measures. In some cases such a retrogression of the tumor may be accomplished that even acute retention may be overcome and relatively normal function restored. However, in the majority of cases which show pronounced urinary symptoms some operative procedure will be necessary on account of the fact that the internal orifice and urethra are obstructed by fibrous tissue of such a degree of consistency that palliative measures will not suffice.

In such cases, it is the custom in many clinics to perform a suprapubic cystostomy, but we feel very strongly that this should only be carried out when all other efforts of restoring normal urinary flow have failed. By suprapubic cystostomy the life of the patient may undoubtedly be prolonged, but the care and apparatus necessary in keeping such a patient comfortable almost of necessity transformed him to the life of a chronic invalid.

During the past few years great interest has arisen in the possibility of relieving certain types of urinary obstruction by intraurethral methods. All of these methods may be said to be based on a combination of the principle of the old Bottini operation and Young's punch operation. Caulk has for some years used his cautery punch operation in various types of prostatic obstruction. Various efficacious and ingenious instruments have been devised and described by Stern, Collins, T. M. Davis, MacCarthy and Kirwin. It has been our custom to treat an increasing number of obstructions at the vesical neck, due to malignant disease of the prostate, by means of the punch operation, followed either by direct application of the cautery wire to the denuded area, or by introduction of the cystoscope immediately after the punch operation and control of bleeding points under direct observation by the high frequency current. These methods have proven eminently satisfactory in relieving this type of obstruction and they have been found more and more applicable as our confidence in the method grows with wider experience. However, it would seem that even more widespread use of intraurethral methods will follow the use of some of the recently devised instruments which have been proposed, which have also the supposed advantage that the operation can be performed under direct vision. Under caudal or spinal anesthesia these operations can be carried out without pain or shock to the patient and hospitalization is reduced to a minimum, many cases being able to leave the hospital after forty-eight hours.

Thirty-seven punch operations have been done in cases of this type without mortality, with consistently good results. In 20 per cent of the cases the procedure had to be repeated later on because of the recurrence of obstruction. In one case it was later necessary to do a conservative perineal prostatectomy. With the perfection of the newer intravesical procedure it will undoubtedly be found that a large proportion

of the malignant obstruction can be relieved by some one of these procedures.

There are, however, some types of malignant obstruction, particularly those associated with benign prostatic hypertrophy, in which either intravesical or intraurethral lobes are present, which will be found impossible to relieve by intraurethral procedures. If any marked intravesical enlargement on cystoscopic examination is noted the method of choice is the relief of the obstruction by conservative perineal prostatectomy. Many cases of hypertrophy of the lateral lobes occur, associated with a malignant process in the posterior lamella, in which punch operation is contraindicated and conservative prostatectomy should be done. In this operation, of course, no attempt is made to remove the entire malignant process and our objective is to restore urination in the normal channel by removing the obstructing lobes at the internal orifice. In many cases it will be found that these lobes may be shelled out as in the operation for benign cases, but many times it will be found necessary to remove scirrhous infiltrating lobes at the orifice by means of the curette and in some cases where a contracted orifice was left after the removal of hypertrophied intravesical lobes the punch instrument has been used to remove this obstruction at operation. Two hundred and fifty operations of this type were carried out and in 70 additional cases the operation was undertaken in the belief that a benign condition was present, but on examination of the specimen malignancy was found. Twenty-two deaths have occurred after conservative perineal prostatectomy for carcinoma, a mortality of 6.9 per cent, or about twice the mortality in our series of operations for benign prostatic hypertrophy. The average duration of life after operation is 2.1 years. One patient has lived 9 years and one 8 years.

The functional results, as a whole, cannot be compared with those obtained in benign prostatic hypertrophy, but, considering the disease, the results are often amazingly good. A few persistent perineal fistulae have occurred. Restoration to normal urinary function is considerably retarded so that many patients have a varying degree of incontinence for some weeks after leaving the hospital. This condition invariably steadily improves, and we have no cases of total persistent incontinence in this series, although in a few cases partial diurnal incontinence has persisted. In the great majority of cases the patient has been restored to the con-

dition of perfectly normal urinary function and the remaining months or years of his life have thus been made tolerable. Even in a few cases where diurnal incontinence has persisted the degree of comfort is much greater than would be the case had a permanent suprapubic cystostomy been done.

CONCLUSIONS

(1) In the treatment of carcinoma our objective is the elimination of the malignant process and the restoration of normal function. Unfortunately, however, the fact that the diagnosis is not made early, either due to the late arrival of the patient or the failure to recognize the malignancy, makes complete elimination as carried out by Young's radical operation feasible only in a small proportion of the cases. If the profession were more alert and suspected all cases with areas of marked induration in the prostate, many more early diagnoses could be made.

(2) From a clinical standpoint, cases of malignant disease may be classified into: (a) those suitable for radical operation; (b) cases without urinary obstruction, but too far advanced for radical operation; and (c) cases with varying degrees of urinary obstruction, too far advanced for radical operation.

(3) Every effort should be made by earlier diagnosis to increase the percentage of cases suitable for radical operation, which gives normal micturition with perfect control in most cases.

(4) In an appreciable portion of cases, too extensive for radical operation and without urinary symptoms, the local growth may be inhibited or even marked retrogression may occur by an intensive course of radium treatment with deep x-ray.

(5) A small proportion of cases, too extensive for radical operation with varying degrees of urinary obstruction, may be relieved by local measures combined with radium therapy. In a large proportion of these cases operative measures are necessary.

(6) The renewed interest in Young's punch operation and its various modifications, the intraurethral electro-therapeutic instruments, will undoubtedly increase the proportion of cases of malignant obstruction which can be relieved by the simpler operations.

(7) In a certain proportion of cases, particularly those in which carcinoma and benign prostatic hypertrophy are associated, obstruc-

tion is best handled by conservative perineal prostatectomy and a review of the results obtained by this operation show that a large percentage of these individuals are restored to relatively normal condition for the rest of their lives, though they eventually die of cancer.

(8) Performance of suprapubic cystostomy in cases of malignant obstruction, as a routine procedure, is to be condemned and this operation should be reserved entirely for emergency and palliative purposes.

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DISCUSSION (Abstract)

Dr. E. G. Ballenger, Atlanta, Ga.—Since I first began to attend medical conventions one of the constant questions asked of the prominent men with whom I came in contact was: "What are you doing for patients with prostatic carcinoma?" A determined effort has been made to find a satisfactory way of treating these conditions. At various times I have been encouraged temporarily with x-ray, radium, and operations, but I regret to say that discouragement has been far greater than encouragement. At the present time it seems that the good we can do for these unfortunates is limited largely to keeping them voiding or draining until the metastases, which are nearly always present before we

can be sure of the diagnosis, result in a terminal affection.

Judged by my own results, and the reports of others, it seems that radical operative measures afford too little lasting good to justify their employment. My enthusiasm for operations on prostatic cancer might increase if the primary mortality rate were higher; at least that is what I would want done for me if I felt sure I would come in the quickly fatal group. To die on the table is probably the most fortunate thing that can happen to a large percentage of the poor fellows with carcinoma of the prostate. Certainly, however, none of us wishes to be the executioner.

To prolong lives and lessen pain, suprapubic cystostomy for drainage is apparently the best procedure. The sum total, however, of the advantages gained by prolonging life under such conditions balanced against the associated annoyances and disadvantages still leaves much to be desired. In order to make life more tolerable during the past two years, we have modified our method so as to provide urination through the urethra as long as possible, by removing with high frequency current the obstructing masses as is needed. While this plan is not 100 per cent perfect, and is not applicable in all cases, many are having a more satisfactory existence than would have resulted from suprapubic drainage. In some the work was done primarily through a suprapubic incision and the obstructing part removed by the high frequency current, while in others all of the work was done through the cystoscope.

When obstruction returns, further cystoscopic fulguration is done and the patient is treated as required to permit voiding. The only patients treated in this manner were those who had carcinoma of the scirrhous type.

One patient failed to return, as requested, when voiding began to be difficult, and when he finally came back we were unable to get an instrument or filiform of any kind into his bladder, although they could be passed to the region of the external sphincter. After considerable study, it was decided to fulgurate into the bladder; using a small McCarthy panendoscope. A "V" shaped section was then made at the vesical neck. The patient could void at once and has continued to void for nine months. He will probably die of metastases before the obstruction of urine becomes unmanageable.

This plan removes the disadvantages of suprapubic drainage tubes, and, at least in a good percentage, the patients will live until metastases or affections other than obstruction bring about the end.

Radical operations seem to me unwise except in the very early conditions in which we do not feel sure of the diagnosis.

Dr. W. J. Wallace, Oklahoma City, Okla.—I do not feel that the radical operation is the best thing for my patients. I rather lean to the more conservative method of treatment, which is to place radium needles through the perineal region into the substance of the prostatic lobes and leave them there for from 300 to 350 milligram hours. Then, if the growth has protruded or obstructed the urinary outflow I use the cautery punch to remove this obstruction. In this manner I have been able to give comfort to my patients and, I think, lengthen their lives materially.

Deep x-ray therapy has its advantage and should be used.