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THE JOURNAL OF THE ALLENTOWN HOSPITAL is published each February, May, August, and November by the Staff and Trustees of the Allentown Hospital. Original papers are invited from all members of the Staff and will be reviewed for publication by the Editorial Committee. Papers submitted must be typewritten, double-spaced, on one side of the page only. Illustrations must be original drawings or black and white glossy photographs. References should be listed alphabetically and should conform to the QUARTERLY CUMULATIVE INDEX MEDICUS: author's name and initials, journal, volume, initial pages and year. Papers should be submitted to the chairman of the committee, Dr. Kerwin M. Marcks, M.D., F.A.C.S.

PRIMARY OVARIAN CARCINOMA

(Series of 30 cases — 1949-1953)

At the ALLENTOWN HOSPITAL

by

FREDERICK R. BEHRINGER, M.D.

THE purpose of this study is to review the cases of primary ovarian cancer treated at the Allentown Hospital from January 1, 1949 to December 31, 1953. Special attention was given to the diagnostic site of ovarian cancer. No statistical significant result could not be obtained because of the limited number of cases and different ways of treatment.

MATERIAL

A diagnosis of primary ovarian cancer was made or confirmed on 30 patients who were admitted to the Allentown Hospital during the years 1949 to 1953. Only cases were used for this study in which the diagnosis was based on a histological report. All cases were operated upon. The surgical procedures varied according to the extension of the malignant growth which was found during the operation. Seven out of the 30 patients were treated post-operatively by X-ray treatment. Cases in which a diagnosis such as diffuse abdominal carcinomatosis, probably primary site on the ovary, were not used in this study. Three out of the 30 patients had a previous hysterectomy and developed primary ovarian carcinoma in a later stage of life. This certainly is an unusually high incidence. However, the question arises should the ovaries be preserved in women after the age of 40 in which a hysterectomy is carried out. The opinions on this subject are divided at present.

AGE

The majority of the cases fell between the ages of 40 and 60. The number of patients between 40 and 50 years of age was 12, or 40 percent. The youngest patient in this series was 30 years and the oldest 81 years of age. These figures are illustrated in Table 1.

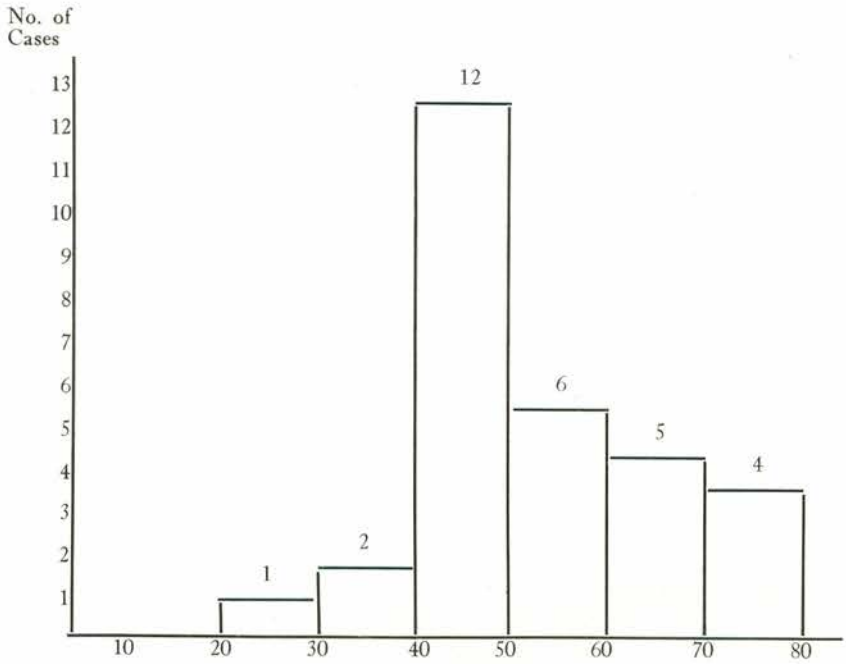

TABLE 1. AGE

SYMPTOMS

The patient's symptoms often were multiple, however, symptoms like abdominal pain, swelling, or abdominal mass were the most frequently noted. Vaginal bleeding, mentioned in the literature with an occurrence of 25 percent of all cases, was found only once in the group reviewed here. This patient was an 80 year old woman with far advanced ovarian cancer. Twelve of the 30 patients stated they had observed a loss of weight or had digestive or urinary disturbances. See Table 2. listed below.

TABLE 2. SYMPTOMS

Abdominal Pain	Abdominal Enlarge	Mass in Abdomen	Vaginal Bleeding	Fatigue Loss of Wt. Ascites
19	12	7	1	12

DURATION OF SYMPTOMS PRIOR TO TREATMENT IN HOSPITAL

The insidious onset of the disease must be emphasized if one compares the duration of symptoms till operative treatment was started. More than 76 percent of all patients complained about symptoms for less than three months. The differential diagnosis of ovarian malignancy should always be considered in the age group of 40 to 65 years when the above complaints are mentioned. See Table 3.

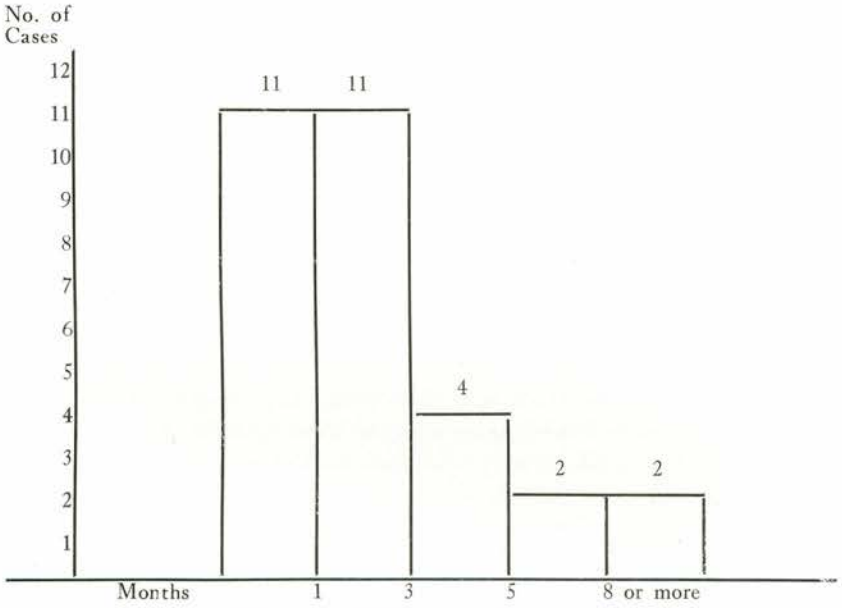

TABLE 3. DURATION OF SYMPTOMS

HELSELS GROUP

For classification of the extension of the malignancy, Helsels proposed classification was used. It is similar to the classification of carcinoma of the cervix. All cases were inspected on operation.

Helsels grouping may be recalled at this point:

Group 1: Includes all cases wherein the lesion is entirely confined to one ovary.

Group 2: Includes cases with bilateral ovarian lesions or where local extension of the neoplasm is present and considered removable by surgery.

Group 3: Includes cases where there is local irremovable extension or metastases and also the important group in which the tumor is ruptured during removal.

Group 4: Includes cases with a so-called "frozen pelvis".

The grouping in our cases is shown in Table 4. Fourteen out of thirty patients were classified in Group 4. Six cases could be classified in Group 3. Groups 3 and 4 together made 76 percent of all cases.

STAGE	I	II	III	IV
	5	5	6	14

TABLE 4. HELSELS GROUPING

PATHOLOGY

The majority of our cases were cystadenocarcinoma either serous or pseudomucinous. In four cases the histological type of the malignancy was not specified. Rare tumors such as teratomas granulosa cell tumors, gynadroblastomas or sarcoma of the ovary were not met during this period of time.

SURVIVAL

The five year rate which is usually used to judge the cure of cancer cannot be applied in this series because the patients were treated between the years 1949 to 1953. Twelve patients died within the first year after the operation, seven within the second year and eleven patients survived two years or more. Two patients that were operated in 1949 are still alive and reported doing well today.

CONCLUSION

According to the present status of cancer treatment, the only chance of any successful therapy lies in the early diagnosis. This applies fully for ovarian carcinoma. Though primary ovarian carcinoma is relatively a rare disease, it should always be kept in mind in women especially in the above mentioned age group having complaints as stated in this paper.

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STENOSING SYNDROMES

RICHARD K. WHITE, M.D.

THE mechanical efficiency of muscles acting to move joints is enhanced and aided by the snubbing or pulley-like action of tendon sheaths, prior to the insertion of a given muscle into its anatomical location. At times the tendon will pass through a groove in the bone. This groove, converted into a tunnel by a ligament, then acts as a protective anchoring sheath to guide the action of the muscle within rather narrow limits, so far as the moment of force is concerned. These sheaths are necessary for the ideal and complete action of the muscle, but they are often the source of a progressive disability. Nature has provided little room for anything else, except that which belongs within the sheath or groove. The addition of fluid, adhesions, scarring and fibrin serve to increase pressure within the closed space or to restrict the motion of the tendon. The clinical entities encountered most commonly are sufficiently frequent in number to classify them as dictinct syndromes. The particular syndrome which one may encounter is dependent upon the anatomical location of the structure involved and the symptoms and the complaints which arise from that particular involvement. Those seen most commonly are the bicipital syndrome or bicipital tendovaginitis involving the long head of the biceps muscle. Other tendons which are involved are the abductor pollicis longus tendon, the flexor carpi ulnaris tendon and the common "trigger finger" most often seen in the flexor tendons of the ring finger and the thumb. In the foot and ankle, the tendon most commonly involved is that of the posterior tibial tendon as it passes behind the internal malleolus of the tibia.

The stenosing syndromes, although most commonly thought of in relationship to tendons, may also involve nerves. The median nerve not infrequently becomes compressed as it passes through the carpal tunnel underneath the flexor rectinaculum at the wrist. The ulnar nerve may also be involved in a stenosing or compression syndrome, although it passes superficially to the flexor retinaculum. It may be compressed as it winds around the hook of the hammate and passes into the palm, ultilizing the pisiform bone as a guiding pillar.

The symptoms of the syndromes in general are the same, but differ only as to location. In the acute case there is edema, congestion, fibrin deposits, adhesions, and at times a pannus over the involved tendon. In the chronic case the sheath becomes thickened, the tendon becoming bound down, and the gliding mechanism interrupted. The stenosing syndromes as related to nerves present pain and a neurological deficit within the local distribution, distal to the compression.

Mechanical injury or trauma is usually the direct cause in those cases recognized as stenosing syndromes. Such injury may take the form of a direct injury or that of an occupational or functional stretching of the tendon. It may also present itself when excessive tension is placed upon the tendon by the muscle which motivates the involved tendon.

The Bicipital Syndrome: In the acute phase, this syndrome is characterized by pain in the anterior quadrant of the shoulder, and more particularly over the bicipital sulcus through which the biceps tendon passes. The tendon can be readily palpated and rolled between the thumb and fingers. The pain characteristically radiates up the back of the neck and downward over the lateral aspect of the arm and into the hand. Those motions which stretch the biceps tendon by motion of the head of the humerus are either restricted or produce pain. The patient who finds difficulty in putting his hand in his back pocket aids in the diagnosis of this syndrome. Placing his hands behind his head in full external rotation and abduction produces much the same reaction.

As the case continues from the acute into the chronic stage, the same symptoms are present, and in addition the shoulder motion is gradually reduced. The patient may not perceive this loss of motion, since he can compensate for the loss of the shoulder joint motion by moving the scapula. Not until the shoulder joint motion is appreciably lost does he realize that his shoulder is getting stiff. The typical frozen shoulder seen after a minor fall on the outstretched hand, or more often seen to occur insidiously, is the end result of such a syndrome.

Limitation of motion occurs primarily for two reasons. The first is due to the conscious limitation of motion which the patient finds necessary because of the pain. As the arm is held down to his side, and not used, progressive loss of motion occurs. The second is the chronic spread of the inflammatory reaction through the shoulder joint with the formation of adhesions and scarring-in of the capsule and synovia. It is of interest to note that the biceps tendon carries with it a prolongation of the joint synovia, through the bicipital groove. The inflammatory reaction of the joint is then one of direct continuity of structure between it and the biceps tendon. The bicipital syndrome is perhaps more common than the ever present "subdeltoid bursitis". It is often misleading to find a calcified deposit on X-ray and assume that the deposit is the cause of pain. There are of course hundreds of people with calcified deposits in the shoulder who have never experienced any difficulty or disability whatever. A patient with a bicipital syndrome and a calcified deposit in the same shoulder necessarily should have his shoulder treated and not his X-ray. Treating the calcified deposit when the cause lies elsewhere can only cause discouragement. The bicipital syndrome is not uncommon following coronary attacks, post mast-

ectomies and post thoracotomies. It should be differentiated from other causes of pain in the shoulder, be they local or referred.

The treatment of the acute case consists of local injection of 50 or 75mgms. of hydrocortone into the bicipital sheath. One does not have to worry much about the anatomical location of the sheath, since the acute spot of tenderness is clearly picked up with the palpating needle. Injection at that spot will suffice. The oral use of 20 mgms. of hydrocortone four times a day in conjunction with the injectable drug, is often of distinct benefit. For the more resistant case, which is still acute, the use of X-ray therapy with a port over the area of tenderness, and not over the general area of the shoulder, is often specific. In the chronic case which has gone on for many months with progressive loss of motion in the shoulder and an increase in pain and disability, the most practical form of treatment is transplantation of the long head of the biceps tendon. This operative approach can be done under local anesthesia and is a necessary part to the rehabilitation of the shoulder. It must be remembered, however, that after the shoulder has become fixed to the side for a long period of time, the other muscles that span the shoulder joint become contracted and shortened. A post operative planned, graded and graduated program must be worked out in order to appreciate the benefits of the surgical procedure. Returning the shoulder to normal is a partnership agreement between the patient and the physician, each performing his share to the best of his ability. The relief of pain by relieving the constriction allows the patient to participate in an exercise program. Prior to the surgical correction this was impossible because of the pain factor.

Stenosing Syndrome at the Radial Styloid (DeQuervain's Disease). This involves the abductor pollicis longus tendon at the radial styloid. This, too, follows the same pattern as the bicipital syndrome, differing only in those points which the location demands. The acute case shows swelling, extreme pain and exquisite tenderness over the radial styloid. Abduction of the thumb is quite impossible because of the pain. Ulnar deviation of the wrist produces pain as does clenching of the fist and rocking the wrist from side to side. Many times there is a palpable fullness either along the radial styloid or higher up over the abductor pollicis muscle. The treatment of the acute case is similar to that of the bicipital syndrome. The treatment of the chronic case consists of splitting the sheath to allow for expansion of the tendon. The syndrome at the flexor carpi radialis is again similar to the others seen in both the acute and chronic phases. Here, however, even the chronic case may respond to the injection of hydrocortone. If this is unsuccessful, then sectioning the flexor sheath produces a relief in symptoms.

The Trigger Finger. The trigger finger is perhaps the most generally recognized and the most commonly seen instance of the stenosing syndromes. The sheath of the flexor tendons is involved. It is perhaps the only syndrome which constantly produces a locking and clicking sensation when the fingers are flexed. It most commonly occurs in the ring finger and in the thumb. If it is seen early enough, the use of hydrocortone is curative; if seen late, with frequent locking and clicking as the fingers are bent, then sectioning of the flexor sheath is indicated. Quite often one can palpate a hard nodule on the palmar surface of the metacarpal-phalangeal joint of the involved finger. This represents a thickening of the sheath, and indicates the area where the section of the sheath should be carried out.

The Posterior Tibial Tendon. The stenosing syndrome at the internal malleolus of the ankle joint is usually a bit different from those seen elsewhere. At this level there is usually a congenital anomaly of the posterior tendon consisting of a bifid or reduplication of the tendon. Through constant use, pain is produced in the region of the internal malleolus. This pain is often referred under the arch of the foot, following the distribution of the posterior tibial tendon as it attaches to the navicular bone and on over to the plantar fascia. The syndrome is rather uncommon and must not be confused with the usual postural strain mechanisms, which are more commonly seen. A diagnostic test of injecting novocaine into the area behind the internal malleolus serves to pin point the lesion and to differentiate from other conditions. The treatment is usually surgical and consists of removing the accessory tendon.

SUMMARY

1. The normal anatomical features which nature has devised are often the source of disability.
2. Tendons and nerves may be compressed by an alteration of the structure of their normal anatomical sheaths.
3. Diagnosis of the stenosing syndromes is dependent upon the knowledge that they exist.
4. Prolonged progressive disability can be avoided by recognition of the syndromes, and the institution of proper treatment.
5. Chronic advanced cases should receive surgical correction in order that rehabilitation of the part involved may be accomplished.

SUBCUTANEOUS RUPTURE OF THE NORMAL FLEXOR TENDON

HARRY MILLER, M.D., F.A.C.S.

THIS paper will be restricted to the presentation of a case of traumatic subcutaneous rupture of the normal flexor tendon. Because closed rupture of the normal flexor tendon of the hand and wrist is a rarity, a discussion of such a case seems indicated.

T.H., a young man of 14, was struck on the tip of the partially flexed left index finger while grasping for a fast moving football. The force of the blow caused a sudden hyperextension of this finger resulting in pain, tenderness over the flexor surface of distal interphalangeal joint. A roentgenogram taken on 10/26/53 showed a small fragment fracture of base of distal phalanx. A splint was applied with finger in slight flexion and the patient was referred to the Hand Clinic. Two days after the initial injury an examination disclosed complete loss of active flexion of the distal interphalangeal joint of the left index finger. A bulbous thickening at the distal interphalangeal acted as a block to complete passive flexion of this joint. There was no limitation of extension. Sensation was normal.

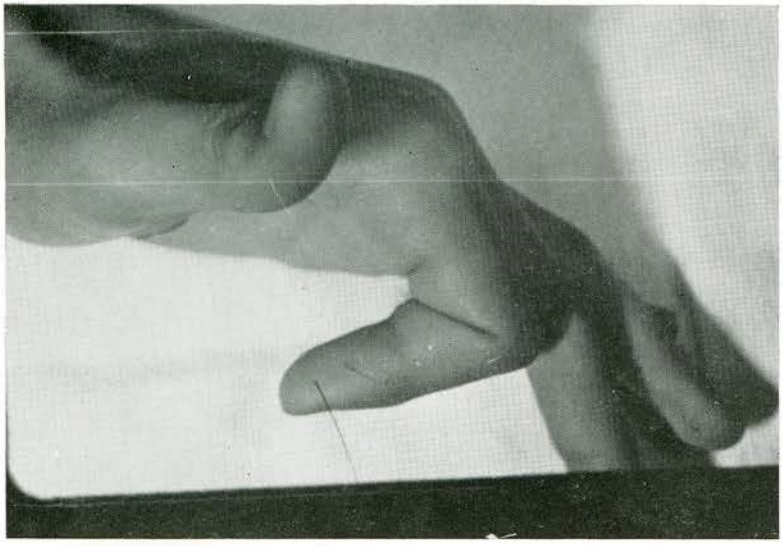

Figure 1

Condition at time of Surgery — Inability to flex distal interphalanged joint proximal interphalangeal joint flexes normally.

One week after injury, operation was performed at the Allentown Hospital. Exposure of the terminal interphalangeal joint disclosed the flexor profundus tendon to be completely torn loose from its insertion into the distal phalanx. (Figure 2) A spicule of bone had been carried downward with the avulsed tendon. The periarticular fibrosis was moderate in extent. The severed end was firmly adherent to the joint capsule and radial digital nerve (shown freed and retracted in Fig. 2). Filmy adhesions extended into the tendon sheath to the point of insertion of the sublimus tendon. The profundus tendon was released from its adherent bed, the edges freshened and the stump fixed to the bone after the technique of Bunnell[1] applying a pull out wire passed through a small drill hole in the bone. The skin and subcutaneous tissues were carefully approximated and the finger and wrist splinted in flexion with maximum flexion at the metacarpaphlangeal and wrist joints. Three weeks after operation the wire was removed and active motion continued. Prior to removal of this wire, bi-weekly active exercises in flexion were given in the office. The extent of flexion 41 days after repair of tendon is indicated in Fig. 3. A 5° flexion deformity of the index finger was noted when the latter was fully extended. One year after repair patient presented a normally extended finger with good grasp and excellent flexion function.

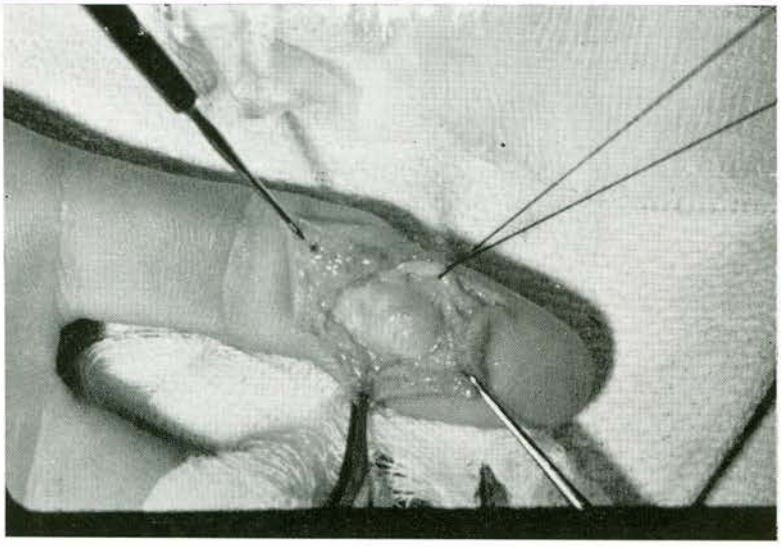

Figure 2

Retracted — Lacerated flexor tendon — Digit nerve freed

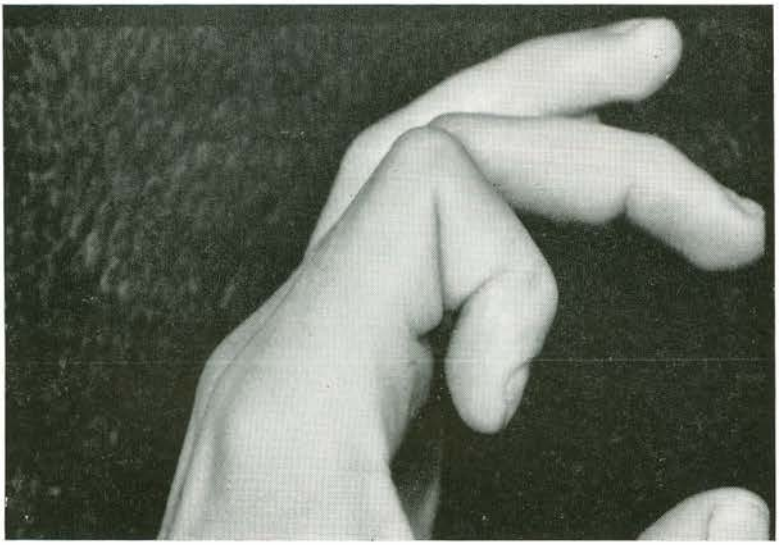

Figure 3

Functia 41 days after flexor tendon suture.

COMMENT

On close inspection of the distal stump of the lacerated tendon an oblique tear had occurred; the radial half of the tendon stump seemed to have separated about 3 mm distal to the insertion, the ulnar half at the insertion taking with it a spicule of bone. It is entirely possible that the unequal force of the blow or torsion of the extending finger might have accounted for the irregularity of this tear.

DISCUSSION

Flexor tendons are extremely strong and when well developed have been said to support the weight of average man. Spontaneous rupture is a rarity. A force great enough to rupture a normal tendon will in most cases luxate or subluxate the regional joint, fracture the bone or cause the tendon to give way at either its insertion or musculotendenous junction before the tendon itself tears through. Dr. Michael Mason[2] writing on the Rupture of Tendons of the Hand concluded "So strong are the tendons that doubts have been expressed by some that rupture rarely occurs unless some pathological change be present in the tissues." In the case presented, we could demonstrate no pre-existing pathological process in the tendon substance.

The mechanism of tear in most cases reported in the literature was similar to that occuring in our cases — namely indirect trauma;

hyperextension of the finger during active flexion. This may result in avulsion of the deep tendon at its insertion with or without dislocation of the distal interphalangeal joint and with or without sprain fracture.

Direct trauma may rupture a tendon at the site of maximum application of this force. Spontaneous tendon ruptures occur more often as a result of an old injury or secondary to disease of the tendons. Kienboeck's disease extending to tendons may cause spontaneous rupture (James)[3]. McMasters[4] reported a case in which tendons spontaneously gave way as a result of foreward angulation of fracture fragments. Laceration of tendons at their insertions are most frequently the result of violent pulling or grasping movements or forcible hyperextension while in the act of flexion. Of 28 cases taken from the literature, avulsions at the insertion and tears at the mucsulocutaneous junctions predominated. Two closed tendon lacerations occurred at the proximal phalanx and 4 at the middle phalanx while one occurred at the wrist.

Functional results in those cases where tear at the insertion has occurred are usually excellent if early re-attachment of the tendon to the bone is done. In the neglected case and in the cases where retraction is great the unsatisfied frayed end may attach itself along the course of the tendon sheath and obliterate this structure. This would necessitate resection of all scar tissue and a replacement tendon graft. Tendons disrupted by disease almost always require wide resection and grafting.

SUMMARY

Relatively few cases of traumatic subcutaneous rupture of the normal flexor tendon have been reported in the literature. The clinical features of a single case together with its treatment and a brief discussion is presented.

The case, including the roentgenograms, was reviewed with me by Dr. Kenneth R. Weston to whom I am indebted for the privilege of treating this patient.

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SUBMUCOSAL NODULES IN THE RECTUM AND COLON

GUY L. KRATZER, M.D., F.A.C.S.

INTRODUCTION

THE proper diagnosis of submucosal nodules in the rectum and colon is important not only from a didactic viewpoint but from a surgical viewpoint because early diagnosis may be important if not life-saving to the patient. Special consideration is necessary first, because these lesions, if they occur in the anal canal, rectum or lower sigmoid are not visualized by anoscopic or proctosigmoidoscopic examination and, secondly, because if they occur in the colon above the endoscopic level the X-ray appearance is not that of the usual destruction of mucosal pattern making roentgenologic diagnosis definitely more difficult.

No attempt is made for purposes of this publication to present an exhaustive statistical tabulation of the number of lesions in each category. Suffice it to state that the general conclusions are based on the examination of a large number of patients suffering from unusual disease of the rectum and colon.

Nodules beneath the skin of the perianal region such as hematomas, lipomas, abscesses, pilonidal cysts and miscellaneous cysts are not included because they are not properly submucosal lesions. Similarly, nodules in the prostate, seminal vesicles, cul-de-sac and extra-rectal lesions in general have been excluded.

DIAGNOSIS

Those nodules within reach of the examining finger may be found by careful palpation of the lower rectum with the index finger. It is important to educate the examining finger so that pathologic processes of any size may be found in any area of the lower rectum. The entire circumference must be carefully explored. Such examination should be performed on many normal subjects so that a keen sense of differentiation from pathologic processes may be developed. In addition to palpation of all mucosa within reach of the finger, it is a good maneuver to place the thumb of the same hand on the immediate perianal skin and by approximating the two fingers in every area of the entire circumference it is possible to determine the nature of the intervening structures. With a little practice it becomes easy to recognize normal mucosa, muscle, fat and skin and differentiate it from any unusual nodule which may be present. It is a matter of developing a keen sense

of touch. In a similar way it is possible for one to appreciate a sense of increased resistance or submucosal mass when the distal end of the sigmoidoscope passes over a diseased area. The scope acts as a conductor and the sensation passes from the distal edge of the scope, which may be as high as 12 inches in the colon, to the examiner's hands on the proximal portion of the instrument.

One may say that this is all well and good, but how about submucosal lesions higher in the colon, that is lesions beyond the reach of the sigmoidoscope? In these cases we rely on Doctors Troxell and Hunter in the X-ray Department. Irregular contour as seen on X-ray without destruction of mucosa is suggestive evidence of a submucosal mass.

The foregoing technique of examination provides only suggestive evidence of a submucosal mass. One must develop a high index of suspicion. The next step is surgical removal of all or a part of the mass for pathologic examination. The biopsy is relatively easy if the lesion is within reach of the proctoscope or sigmoidoscope. It is important to emphasize that removal of the over-lying mucosa only may not provide the desired information. It is necessary to go thru the mucosa and remove the nodules surgically or if the biopsy forceps is used a bite of mucosa is removed and discarded and another adequate bite of the lesion itself taken for pathologic examination. Should the lesion be high in the colon beyond the reach of the sigmoidoscope then laparotomy and colotomy is indicated. The patient must be prepared as for any other type of colonic surgery.

PATHOLOGY

The following type of lesions have been discovered by the technique described: hematomas, oleomas, abscesses, fistulas, lipomas, endometriomas, leiomyosarcomas, lymphosarcomas, mucinous carcinomas, carcinoids and tuberculosis.

Hematomas may occur as comparatively large submucosal lesions or as small nodules in the rectovaginal septum following trauma incident to childbirth. The end result of the latter are small fibrotic nodules. It is rarely necessary to subject these to biopsy.

Oleomas may follow injection of hemorrhoids with sclerosing solutions. Usually these are multiple and the history frequently suffices to make the diagnosis.

Abscesses and fistulas seldom present themselves only as submucosal masses. However, in certain submucous abscesses or recto-recto fistulas, the aforementioned technique is advisable.

Lipomas occur as soft lobulated submucosal tumors. They are the second most common benign tumor of the colon. Presumptive diagnosis only is made by x-ray because of their radiolucent quality, regular surface, inconstant filling defect and usual position in the right half of the colon.

Endometriomas of the colon are occasionally found. They involve the bowel wall but do not distort the mucosa. The rectum and lower sigmoid are the usual sites of involvement. The proctoscopic appearance, when the lesion is within reach of this instrument is usually that of a fixed bowel with normal mucosa although some have described reddish black nodules. The x-ray appearance is that of a long filling defect with no distortion of the mucosa. It is difficult to differentiate carcinoma without the aid of colotomy or biopsy. They occur in the child-bearing age and may produce obstructive symptoms.

Leiomyosarcomas usually begin as rubbery nodules beneath the mucosa in the bowel wall and diagnosis is made by biopsy.

Lymphosarcomas begin as multiple submucosal nodules not unlike enlarged lymph glands. Biopsy is vital.

Mucinous carcinoma usually manifects itself as an ordinary cancer although it may begin as a submucosal swelling as recently demonstrated in a case of chronic ulcerative colitis.

Carcinoids are usually associated with the appendix and terminal ileum but are found with increasing frequency as yellowish submucosal nodules in the rectum.

Tuberculosis of the colon and rectum is either of the hyperplastic or ulcerative type. In a few instances the first manifestation may be that of a nodular process in the submucosa of the bowel.

TREATMENT

Treatment is comparatively simple after the proper diagnosis is made. The important thing is to recognize that an abnormal process is present and not hesitate to do a biopsy. The pathologist plays a unique role in treatment in that the patient's life, or at least the decision as to whether or not to sacrifice the rectum, may depend on his interpretation. Hematomas do not require special treatment as they usually are spontaneously absorbed. If they occur in internal hemorrhoids it is best to leave them alone as incision of the over-lying mucosa may cause troublesome bleeding.

Oleomas from injection therapy of internal hemorrhoids are likewise left alone after biopsy of one of the nodules has revealed the proper diagnosis.

Abscesses and fistulas must be treated surgically as they tend to recur and may destroy portions of the sphincter muscle thereby producing incontinence.

Lipomas are perferably removed so that a correct diagnosis be made and obstruction or ulceration of the over-lying mucosa with resulting hemorrhage be avoided.

Endometriomas of the colon rarely require resection because removal of the ovaries results almost immediately in their disappearance. Temporary colostomy is necessary if complete obstruction is present. Resection may be performed if cancer cannot be ruled out.

The highly malignant tumors such as leiomyosarcoma, lymphosarcoma and mucinous carcinoma require radical resection or extirpation.

Carcinoids are malignant tumors and do metastasize although small lesions may be locally excised. Large lesions, especially if ulcerated, require extirpation or radical segmental resection.

Tuberculosis of the colon and rectum is very rarely a primary lesion and therefore both general and local treatment is necessary. Localized hyperplastic lesions of the colon are frequently and of the rectum occasionally resectable. Ulcerating lesions are rarely resectable.

SUMMARY

This general survey of submucosal nodules as it pertains to the early diagnosis and treatment of the comparatively rare lesions of the rectum and colon should serve to emphasize the importance of careful palpation of the lower portion of the rectum as well as minute proctosigmoidoscopic and X-ray examination. Early diagnosis, substantiated by pathologic verification is important, if not life-saving, to the patient. Some of the problems involved in hematomas, oleomas, abscesses, fistulas, lipomas, endometriomas, leiomyosarcomas, lymphosarcomas, mucinous carcinomas, carcinoids and tuberculosis are briefly described.

CURRENT CONCEPTS IN THE DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS

N. H. HEILIGMAN, M.D.

THE problem of the control of tuberculosis has undergone great changes in the past several years. For the first time there are "beds waiting for patients" in tuberculosis sanatoria and hospitals. In fact, a number of them have closed their doors or opened them in whole or in part to patients with non-tuberculous diseases. The mortality rate has dropped from about 200 per 100,000 population to about 12 per 100,000 population in the past 50 years. However, there has not been a comparable decrease in the number of known case of tuberculosis.[1] Since this is a chronic recurrent disease and these patients are living longer, the family physician will be confronted with differentiating between the re-activation of tuberculosis and other diseases which may mimic tuberculosis.

The general hospital and the family physician may shortly replace the tuberculosis centers for the following reasons:

1. Chest survey programs are exposing the disease in its earlier stage. From 85 percent to 90 percent of the cases found are in the minimal or moderately advanced stage with little or no symptoms. Previously patients presented themselves with the classical symptoms of tuberculosis, and 85 percent to 90 percent were in the far advanced stage.

2. Anti-TB drugs are being used in the general hospital and in the home.

3. Improved surgical techniques.

There is still a need for the tuberculosis sanatorium in the control of this disease. There are patients who must and should be separated from their families and the community for short or indefinite periods of time. The old tuberculous patient with active disease and "positive sputum" may have to be isolated for the remainder of his life. When young children are in the home, especially under five years of age, the adult with active tuberculosis should be removed to the sanatorium until he is non-infectious.

DIAGNOSIS

1. *The establishment of the diagnosis:* The labeling of an individual as "tuberculous" inaccurately may cause him great hardship, financial and social, and may prevent him from obtaining employment or insurance coverage. The use of the tuberculin test should never be for-

gotten. If a properly done tuberculin test in an adult is negative, it generally rules out tuberculosis. The exception is the "terminal" case of tuberculosis or tuberculous meningitis or miliary tuberculosis when the tuberculin test may be negative. The best test is the intracutaneous (Mantoux) test, using either Purified Protein Deriviative (PPD) or Old Tuberculin (OT). The Patch test of Vollmer can also be used but is not as accurate as the Mantoux Test. The sputum examination is, however, still the most important test in the establishment of the diagnosis. It determines infectiousness of the disease and indicates activity. Repeated morning specimens are usually sufficient, especially if culture methods are used in addition to direct smears. If there is no sputum available, culture of fasting gastric contents for tubercle bacilli should be done. The chest roentgenogram, while usually reasonably diagnostic, has its pitfalls. Serial roentgenograms are extremely valuable, both in establishing a diagnosis and determining activitity. Special radiologic studies, such as apical lordotic views and laminographic studies are very helpful.

2. *The Determination of Activity:* Pulmonary Tuberculosis should not be treated unless it is felt that the disease is active or probably active. A well taken history is very important and if previous chest roentgenograms can be obtained for comparison a great deal of valuable time can be saved in determining activity. The blood sedimentation rate should be used, but cannot be depended upon entirely, as there are instances where patients have normal blood sedimentation rates and have "positive" sputa. Generally, almost any tuberculous lesion in a young individual should be considered as "active" or "probably active" and treated. In doubtful cases, a patient may be placed on a modified rest regime and roentgenograms repeated every six to eight weeks until activity or lack of it is determined.

3. *The Exclusion of Other Diseases Simulating Tuberculosis:* A great deal of harm can result if this is not heeded. Not only will other diseases not respond to anti-TB drug therapy but valuable time may be lost in not instituting proper treatment for the other condition. The most common error is treating a patient for tuberculosis when he has carcinoma of the lung and thus vital surgery is delayed. On the other hand, treating a patient for Lupus Erythematosis with cortisone and ACTH when the correct diagnosis is tuberculosis can also do irreversible harm. It should be borne in mind that the pulmonary manifestations of Lupus Erthematosis may simulate tuberculosis even to the point of cavitation.

PUBLIC HEALTH MEASURES

The physician must attempt to answer two questions: 1. Who infected this patient? and 2. Whom has he infected?

To determine this a tuberculin test should be done on all contacts under 15 years and a chest roentgengram of all contacts above 15 years. Because of the high incidence of tuberculous meningitis in children under five years, consideration should be given to the use of antimicrobial drugs in those who react positively in order to treat the disease at its beginning.[2] The use of BCG (Bacillus Calmette Guerrin) Vaccination is still in the controversial state and certainly does not replace accepted methods of isolation in prevention of tuberculosis. The disadvantage of BCG is that it destroys the value of the tuberculin test in determination of infection in the general population.

TREATMENT

One of the first decisions is that of determining whether the patient should be treated at home or be transferred to a Sanatorium or Hospital. While many factors are involved, a very important one is the contact of young children in the home, especially those under five years. In such a situation, the patient should be taken out of the home and placed in a sanatorium at least until it is felt that the patient is no longer infectious. Many times the physician has to involve other community resources in order to accomplish this, i.e., the public health nurse, the social worker and the clergy.

DRUGS: The most accepted drugs in the treatment of tuberculosis today are:

1. Streptomycin (SM) or Dihydro-Streptomycin
2. Para Amino Salicylic Acid (PAS) or its Sodium Salt
3. Isonicotinic Acid Hydrazide or Isoniazid (INH)

The use of these drugs will be discussed as they apply to the treatment of chronic pulmonary tuberculosis and not as they are used in acute miliary tuberculosis or in tuberculous meningitis.

The current plan is to begin with INH and PAS and save the use of SM for the day when the patient may have a reactivation of the disease or needs extra protection for surgery. Both of these medications are given by mouth. PAS is best tolerated (in my experience) as its sodium salt in doses of 3.0 Gms. with meals (Total 9.0 Gms. per day) but can be given up to 12.0 Gms. or even 15.0 Gms. per day. INH should be given in doses of 3 to 5 mgm. per kilo per day divided into two doses every 12 hours. INH should be continued for about one year and PAS for 18 to 24 months. PAS may produce some gastro-

intestinal symptoms but generally it does not present too much of a problem in the suggested doses. Powders and enteric coated tablets are available and the use of Thorazine is doses of 10 mgm. or 25 mgm. with the PAS has been suggested as a means of avoiding nausea. INH should not be used in any patient who has a history of epilepsy, severe anxiety or agitated states, because it is a central nervous system stimulant. INH is also contra-indicated in severe alcoholics, because it is hepatotoxic. It is also well to remember not to use Demerol in patients receiving INH, for anti psychosis may result. Rarely it may produce some arthritis or neuritis.

SM and Dihydro-Streptomycin is generally given in doess of 1.0 Gm. intra-muscularly once daily for 7 to 14 days and then 1.0 Gm. twice weekly for approximately one year. Dihydro-Streptomycin is the choice of this author, and very little untoward effects have been noted. In the recommended doses, there is usually little or no effect on the eighth nerve, on either its auditory or vestibular portion. In cases where this occurs, preparations are available which combine the two drugs in equal proportions. Many patients complain of "flushing" or "numbness" after the injections. The use of anti-histamine preparations sometimes counteracts these symptoms.

REST in the treatment of pulmonary tuberculosis has also undergone a change. There is certainly enough experience now to indicate that the need for both daily requirements and the duration of rest has been greatly reduced by the proper use of anti-TB drugs. However, it must be emphasized that both mental and physical rest are still essential in the treatment of this disease, and all available resources should be brought in to accomplish this. Generally, every patient should have complete rest for a minimum of two months and some for much longer periods. Except in very toxic patients, bathroom privileges are permitted almost at once, and even sitting along side of the bed to eat is permitted. As the patient improves, his "cure" is increased one hour a day every two or three weeks, depending on the individual case. Rest period for two hours in the early afternoon should be insisted upon for a long period of time.

NUTRITION: The food should be well balanced and spaced at regular intervals. Supplementary feeding is not necessary and often prevents the patient from eating at meal time. A pint of milk daily is generally sufficient.

SURGERY: The surgical treatment of pulmonary tuberculosis has been made a great deal safer with the use of the anti-TB drugs, improved surgical techniques, improved anesthesia, and pre- and post-operative care.

Of the minor surgical procedures, pneumoperitoneum has practically replaced pneumothorax because of its increased safety factors, both immediate and late. It is often used as a preliminary measure to prepare the patient for major surgery or as an extra safety measure after major surgery.

The ideal form of major surgery in pulmonary tuberculosis is resection of the diseased area whether the resection involves a segment, a lobe or an entire lung. When this is contra-indicated, thoracoplasty is the next procedure of choice. Extra-pleural pneumothorax or plumbage has its advocates, but, generally speaking,has been abandoned. Phrenic nerve interruptions are also rarely done at the present time.

Regardless of what surgical procedure is used, it is impossible to be sure at any time that all the diseased areas have been removed or adequately controlled, and for this reason reactivation of the disease is always possible. Thus, early recognition of reactivation must be determined so that adequate treatment can be instituted promptly.

SUMMARY

1. Mortality of tuberculosis is declining. However, the number of cases remain relatively constant.

2. Tuberculosis is found earlier and treated more by the general hospital and family physician.

3. Recognition of reactivation in chronic tuberculosis is stressed, as well as differential diagnosis.

4. Current concepts of diagnosis and treatment of pulmonary tuberculosis are reviewed.

REFERENCES

1. J.A.M.A. 157: 512 Feb. 5, 1955.
2. Dis. of Chest 25:459 April 1954

TISSUE AUDIT COMMITTEE

PROGRESS in medicine has been rapid and extensive, not only in its purely scientific aspects but in the staff procedures and control in all accredited hospitals. This has been brought about voluntarily by doctors in their zeal to give to each and every patient a service best suited to their individual interest.

Granted that training and accreditation of surgeons today is on a very high plane, the fact nevertheless remains that mature surgical judgment is a phase of the art of medicine that knows no absolute master. Surgeons are human and fallible and so a narrow viewpoint and an honest misguided enthusiasm has at times led to a "look and see" procedure. Then also the pressure of the referring doctor, who has outlined a positive procedure to the patient, on the less resolute surgeon, has contributed to a course of least resistance. And as surgical procedure have become relatively safe because of the many advances of various branches of medicine, their application needs a benign and impartial review in today's hospital.

This gives some of the thinking that bred the formation of Tissue Audit Committees.

Such a committee has been in actual operation since September, 1953, in the Allentown Hospital. Each month the Head of the Department of Pathology submits to the Tissue Audit Committee the cases in which the tissue removed at operation shows no marked gross or histological disease. The Tissue Audit Committee reviews the cases in question and submits a formal report to the Executive Committee of the Medical Staff.

Although this procedure, as stated, was formulated voluntarily by the profession itself, it is obligatory to keep such records in order to maintain the accreditation necessary for residency training.

The committee personnel was dubious as to correct procedure as we found but one article in the literature in our formative period and no close contacts to guide us and we were fearful lest we transcend the rights of individuals.

Out of our experience, we can say that on the whole we are proud of all of us and that we did not uncover any particular problem, but must say that even so the number of cases submitted each month has declined so that in the months of May, 1954 and July, 1954, none were submitted and in August, 1954, but four cases.

The Committee does not think it has reached its full purpose but experience here and elsewhere will lend a guiding hand.

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