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The Journal of the Allentown Hospital is published each January, April, July and October 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.
VOLVULUS OF THE CECUM, WITH A
CASE PRESENTATION

By JOHN J. MADONNA, M.D., and
TAKEO YAMASHITA, M.D., F.A.C.S.

INTRODUCTION

Volvulus of the cecum is usually encountered as an acute abdominal emergency but it often may be found as a chronic recurrent form, but only after thorough examination and suspicion of this interesting condition. Undoubtedly we are missing the diagnosis of the chronic form mainly because we do not usually consider it in the differential diagnosis of obscure recurrent lower abdominal pain. Fitzherbert\(^1\) pointed out in his paper in 1954 that the chronic intermittent form occurs more frequently than previously realized and should be kept in mind in cases resembling the so-called “chronic appendicitis”, especially if the attacks of lower abdominal pain are associated with colicky abdominal pain of sudden onset and of short duration and relief obtained by the passage of large quantities of flatus. He also attached great importance to the value of rectal examination in volvulus of the cecum where the cecum has remained in the right lower quadrant of the abdomen or pelvis. In this situation the cecum may be filled with inspissated feces. He considered this finding as a great aid in diagnosis in the chronic or subacute form of the disease.

In this paper we intend to deal only with the discussion of the acute form where a surgical emergency exists.

INCIDENCE AND MORTALITY

According to the statistical review of available reports from four large clinics on acute bowel obstruction, Dean,\(^2\) Massachusetts General Hospital, reported six cases of volvulus of the cecum out of 520 cases of acute intestinal obstruction, an incidence of 1.15%.

Boston City Hospital reported one case out of 956 cases of obstruction with an incidence of only 0.1%. Harlem Hospital had one case of cecal volvulus in 150 cases of obstruction, or 0.75%. Charity Hospital, New Orleans over a five year period, and Tourou Infirmary, New Orleans, over a seven year period had 119 cases of acute intestinal obstruction of the large bowel and only three were due to cecal volvulus.

At the Allentown Hospital\(^3\) not a single case of volvulus of the cecum was treated surgically by any of our surgeons in the past 15 years.

MORTALITY: All writers report a very high mortality in this rare condition. In Wolfers' review of the literature,\(^4\) of 324 cases of cecal
volvulus there was a mortality of 50% in the acute form of the condition. This mortality is due to the delay in diagnosis and in surgical intervention. The mortality is 100% if it is undiagnosed or unoperated.

**AGE GROUPS:** Any age group may be affected but the greatest majority occur in the third and fourth decades.

**ETIOLOGY**

The writers of this part of the subject all agree that the cause is due to a congenital failure of normal fixation of a variable portion of the proximal colon. The presence of an enterocolic mesentery according to Banerji should be the term applied to the congenital defect. His detailed paper has a very accurate description of the anatomical relationships involved in the hypermobile cecum, terminal ileum and proximal ascending colon and draws a conclusion that volvulus of the cecum is in reality a misnomer and states that more accurately it should be called "torsion of mesentery with involvement of a mobile ileocolic loop". The abnormal embryologic situation may be found in 10 - 30% of autopsy material.

**PATHOLOGIC ANATOMY AND PHYSIOLOGY**

Because of the abnormal enterocolic mesentery the possibility of a volvulus of the cecum exists. The torsion of the mesentery is probably produced by two distinct movements. In the first movement the abnormal mesentery doubles up on itself with the superior mesenteric artery as the axis and the post arterial segment turning in a clockwise direction up and to the left. The second movement has the parietal attachment of the doubled up mesentery turned upwards so that the posterior surface of the mesentery becomes the presenting surface on opening the abdomen.

The amount of displacement of the cecum to the left upper abdomen naturally depends on the length of the mobile portion of the ascending colon. The cecum dilated may occupy the umbilical area or may be transferred high up in the left upper quadrant of splenic areas.

As to the degree of torsion, many authorities differ. Some feel that 180° torsion is necessary to produce the volvulus and others feel that it may twist 360° and more. This is not a serious point of difference since the pathology produced by the twist is usually the same depending on the duration of the torsion.

After the torsion has occurred the usual sequence of events is as follows: The cecum is drawn out of its position in the right lower quadrant and is replaced by coils of small intestine thereby producing an emptiness.
in the right iliac fossa and this may be a helpful diagnostic sign of the condition. The ascending colon is impinged upon by the doubled up mesentery and a second site of obstruction is then produced. The cecum which is now closed off from the remainder of the G.I. tract, forming a closed loop type of obstruction, it begins to distend and attains enormous proportion. The teniae widen and eventually may split. The cecal wall may now become necrotic in patches or over its entire surface. The distended cecum produces most of the abdominal distention seen early and the position of the distention is helpful in making the diagnosis clinically along with the X-ray findings.

Gradually the terminal ileum distends because of the obstruction and then may be seen by X-ray as a step ladder type pattern and clinically significant if vomiting increases as the duration advances.

**CLINICAL PICTURE AND DIAGNOSIS**

At the early stages shock is rare and fluid and electrolyte balance is not far out of range. Septic signs are absent and except for pain and distention the patient is in fair condition. Nausea and vomiting are variable but usually present to some degree but none as severe as in high intestinal obstruction or other acute abdominal emergencies.

The patient usually gives a history of constipation and on several occasions severe attacks of abdominal pain relieved suddenly by the passage of large amounts of flatus. The acute attack may be sudden or gradual and is not typical. The pain is usually colicky and located in the lower abdomen but it may be present anywhere in the abdomen. The signs and symptoms are of a low intestinal obstruction early and later those of a closed loop type of obstruction with strangulation small bowel distention. Distention is usually present and is characteristic by its location in the mid-abdomen or in the left upper quadrant and often may appear to be a gastric dilatation at first inspection. This is ruled out by the X-ray either by using a Levine tube to decompress the stomach and thus differentiated from the colon or by a barium swallow. A tense mass may be felt in the upper quadrant and in the umbilical area. Tenderness is usually exquisite over the mass. Signs of peritoneal irritation depend on the duration of the twist and whether or not the vascularity of the bowel has been compromised.

X-ray study is most helpful in the diagnosis of this condition. According to Ryan and Burbank⁵ the diagnosis should be made by X-ray examination, only plain films being necessary. The main points being as follows:

1. Great cecal distention, frequently in left upper quadrant.
2. Distended small bowel located to the right of the cecum.
3. The right sided position of the ileo-cecal valve.
4. Small bowel obstruction, step ladder pattern.
5. A single fluid level in the cecum.
6. Distended hollow viscus, interpreted to be stomach may be ruled out by intubation of the stomach or by fluoroscopy following barium swallow.

Most of the above points are present in the X-ray film of the case presented.

CASE REPORT

Mr. P. R., 50 year old white male, was admitted to the Allentown Hospital on November 25, 1954 at 11 P.M. with the following chief complaint, “Pain in the abdomen.” Patient first noticed a sudden onset of severe suprapubic abdominal pain on November 23rd. The pain, although severe at first, gradually became dull and constant and he lost his appetite entirely and refused all nutrition. He stated that he had not passed gas or had a bowel movement since the onset of his illness two days prior to admission. The patient had no history of weight loss, change in bowel habits nor abdominal pain but had passed some small amounts of bright red blood with bowel movements on several occasions in the past two or three years. The patient was a well nourished and developed 50 year old white male lying quietly in bed complaining only of persistent abdominal pain. The positive findings, mainly abdominal were as follows:

Tense, distended abdomen with moderately severe tenderness in epigastrium and left upper quadrant.

Rebound tenderness especially in upper abdomen was present and peristalsis was hypoactive. There was a tympanic sound to percussion especially in upper abdomen. No masses could be palpated discreetly.

Rectal examination was negative.

The clinical impression was volvulus of the colon because of the enormous distention of the colon.

LABORATORY AND X-RAY FINDINGS: A flat plate of the abdomen, taken soon after admission, revealed extensive small bowel distention and marked distention of the colon up to the left upper quadrant and an increased area of distention was seen in the region of the splenic flexure of the colon, not unlike a distended stomach. Unfortunately we did not avail ourselves of the expert interpretation of the film by our Roentgenologists prior to operation at 2:30 A.M. How-
ever, without any forewarning, the film was read by our own X-ray Department as a cecal volvulus.

The blood count was reported: Hgb - 86%; RBC - 4,340,000; WBC - 15,400; Polys - 82%; the urinalysis was essentially negative.

![Image of X-ray showing distention of cecum, small bowel and ectopic position left upper quadrant of abdomen.](image)

**CLINICAL COURSE:** A pre-operative working diagnosis of a volvulus of the colon was made and a Levine tube was inserted and suction begun. Clinically the patient appeared dehydrated. Intravenous 5% glucose in water was begun. The patient was given stat doses of penicillin and streptomycin and preparation for immediate surgery was begun. The patient's blood was typed and crossed for 500cc of whole blood available for operation and the patient was catheterized. Pre-operative medication was ordered and at 2 A.M. November 26th the patient was operated upon and a volvulus of the cecum was discovered. An extremely dilated cecum was delivered into the wound from the left upper quadrant of the abdomen. A torsion of 360° was reduced by clockwise rotation of the cecum. Because of the extreme distention with impaired blood supply with questionable viability of the cecum and terminal ileum and because of the possibility of recurrence of the volvulus a primary resection of the involved bowel and end-to-end Ileo-transverse colostomy was performed. The abdomen was closed with one large cigarette drain in the vicinity of the anastamcsis and
brought out through a stab incision in the right lower quadrant. Surgery was done under general anesthesia. The patient withstood the procedure well and returned to his room in relatively good condition.

POST-OPERATIVELY: The patient's abdomen remained distended on the first post-operative day when flat plate X-ray of the abdomen revealed small bowel distention and a cantor tube was passed. The patient's nutrition and output were maintained by daily intravenous feedings. By the third post-operative day the patient was passing gas and had good intestinal motility. The cantor tube was then removed. The post-operative course was smooth from here on and the patient was discharged 15 days after admission, symptomless on a full low residue diet.

Six-month Follow-up: The patient is in good health without symptoms with no significant change in the bowel habit. He works full time in his usual occupation.

TREATMENT: All writers agree that immediate surgical intervention is indicated in all cases of cecal volvulus. Various surgical procedures have been recommended for the acute cecal volvulus. In good risk cases, primary resection with end-to-end ilto-transverse colostomy is preferable. In poor risk cases exteriorization of the cecum along with an inch or two of normal ileum and ascending colon with cecostomy and small bowel decompression either by ileostomy or by passage of a tube through the ileocecal valve in retrograde manner into the terminal ileum, may be the operation of choice. The intestinal continuity can be restored by resection of the exteriorized segment of bowel and end-to-end anastamosis or by the clamp and spur method as in a Mikulicz type of double barrel colostomy closure. Choice of operation also depends on the viability of the bowel. No matter what procedure is decided upon steps should be taken to prevent recurrence of the volvulus.

If the bowel is viable and the reduction of the twist is easily accomplished merely tacking the cecum and mobile mesentry to the right gutter would suffice along with decompression by cecostomy. Small bowel decompression can be accomplished by a Cantor tube. In some cases, simple detorsion and cecostomy will relieve the acute situation. Fixation of the cecum being produced by inflammatory adhesions around the cecostomy site, thus preventing recurrence. Simple detorsion is inadequate for long term cure and is not recommended.
SUMMARY AND CONCLUSION

1. Volvulus of the cecum is a surgical emergency in most cases.
2. Early diagnosis and operation are necessary to prevent gangrene of the involved loop of bowel, spontaneous perforation, peritonitis and death.
3. Pre-operative diagnosis can and should be made early, aided by X-ray examination. A high index of suspicion is necessary if delay is to be avoided and mortality thus reduced.
4. The choice of operation depends on the patient's condition and the viability of the involved bowel.
5. A case is presented where primary resection and end-to-end ileo-transverse colostomy was accomplished with a good result.

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SEIZURE CLINICS

Are held the first Thursday of each month at 1 p.m. Appointments may be arranged with the secretary of the Outpatient Department.
MALIGNANT DEGENERATION IN
ULCERATIVE COLITIS
A Case Report with Unusual Features

By E. P. SALVATI, M.D. and G. L. KRATZER, M.D., F.A.C.S.

There has been an increased awareness during recent years of an association between ulcerative colitis and carcinoma of the colon and rectum. The first case report of such a relationship was that of Yoeinan’s in 1927. Since then, numerous reports have appeared in the literature, with varying percentages given, depending, to a considerable extent, as to whether the cases were treated medically or surgically. Kasich and Brown reported an incidence of 4.9% in 143 cases of ulcerative colitis. Gleckler and Brown, in a collection of 316 cases, found an incidence of 3.8%. This was similar to the incidence of 3.9% in 226 cases as reported by Lyons and Garlock. Hurt, reviewing 18 cases of ulcerative colitis which were subjected to surgery, found 2 cases of carcinoma or an incidence of 11.1%. In one of the largest series of cases (1,564) reported in the literature, Bargen, et al, found that 98 cases had developed carcinoma of the colon or rectum, an incidence of 6.3%. They concluded that carcinoma of the colon and rectum was 30 times more frequent in patients with ulcerative colitis than in the general population of the same sex and age. Despite this evidence indicating a definite relationship between ulcerative colitis and carcinoma, Felsen and Wolansky, in a review of 858 cases, did not find a single case of carcinoma of the colon or rectum. Possibly the fact that none of these cases were subjected to surgery might account for such a finding as it has been shown that, the higher the incidence of surgical intervention, the greater the percentage of carcinomas that are found. In the series of cases reported by Lyon and Garlock, 7 of the 9 cases of carcinoma found were diagnosed after an abdomino-perineal resection had been carried out purely on the basis of an intractable chronic ulcerative colitis. Obviously, many cases are not diagnosed if the patient never comes to surgery or autopsy.

It was thought that the case report to follow would be interesting in that it demonstrated several unusual features.

A CASE REPORT

Mrs. L. B., a 70 year old white female, was first admitted to the Allentown Hospital on August 8, 1952, complaining of diarrhea, with the passage of blood and mucous, of 3 weeks duration. Sigmoidoscopy on admission revealed an edematous, red mucosa that bled easily and
showed many small ulcerations. A barium enema was obtained and reported as normal. The stools were negative for ova and parasites. The patient was treated conservatively and improved. She was discharged from the hospital with the diagnosis of minimal ulcerative colitis. She remained fairly well for 2 years, having intermittent bouts of diarrhea, until September 13, 1954, at which time she was again admitted to this hospital, with the complaint of rectal pain and fever of 3 weeks duration. Physical examination was negative except for the rectum. On digital examination, marked induration of the left lateral wall of the rectum was noted. The temperature was 102°. The patient was taken to surgery the day following admission and under spinal anesthesia the rectum was examined and, at a level 1" from the dentate line on the left side, an abscess opening was found from which exuded a copious amount of pus. A left perineal incision was made up to the levator ani but no pus was obtained and thus it appeared that the abscess was confined to the tissues immediately adjacent to the rectal wall and that it had ruptured spontaneously into the rectum. Nothing further was done. One week post-operatively a digital examination still showed marked thickening of the rectal wall about the internal fistulous orifice. A biopsy was performed with the suspicion that this represented a carcinoma. The report was negative and the patient was discharged on September 23, 1954. She was re-admitted to the hospital on October 10, 1954. At this time she was asymptomatic but digital examination still revealed a firm thickening of the rectal wall at the site of the previous abscess. Anoscopy was carried out under spinal anesthesia. A small opening was again noted in the bowel wall 1" above the dentate line. The mucosa appeared normal in this area but a hard submucosal mass could be felt about the circumference of the fistulous opening. An incision was made directly through the mucosa and a biopsy specimen obtained. This was reported as "ulcerative colitis showing a typical glandular proliferation consistent with early malignant change". For personal reasons the patient wished to return home and she was discharged on October 28, 1954 and returned to the hospital for further evaluation on November 8, 1954. A second biopsy was performed and the pathological report was "adenocarcinoma of the rectum". The patient received the routine bowel preparation and on November 15, 1954, abdominal exploration was carried out under endotracheal anesthesia. The abdomen was free of metastases. An abdomino-perineal one stage Miles resection was then performed. A high sigmoid colostomy was established as it was felt that the colitis was very minimal at this level. The post-operative course was uneventful except for the development of a superficial wound infection which responded to antibiotics and drainage. She was discharged from the
hospital on the 19th post-operative day. Gross description of the tissue removed at surgery was as follows: "specimen consists of a 28 cm. segment of colon including the sigmoid, rectum and ano-rectal junction with attached perineal skin. On section an ulcerating lesion is seen just proximal to the ano-rectal junction. This measure 3 cms. in diameter with slightly elevated edges and a central ulcerating portion within which a perforation extending completely through the bowel and attached peri-rectal fat can be identified. On sectioning the ulcerating lesion, and ill-defined tumor is seen extending through the rectal wall and, in places, involving the peri-rectal fat. The remaining rectal mucosa shows loss of the rugal folds, marked reddening, and areas of superficial ulceration throughout". Microscopic examination showed a mucoid adenocarcinoma with chronic minimal ulcerative colitis.

**DISCUSSION**

One is impressed by two features of this case not generally seen. First, the development of an ulcerative colitis at such a late age. Ordinarily, ulcerative colitis has its beginning during the 2nd and 3rd decades and it is exceptional to see it for the first time in a woman 70 years of age. Secondly, the short duration of symptoms before malignant degeneration occurred. The subject presented had had symptoms for approximately two years prior to the diagnosis of carcinoma. In Gleckler and Brown's series, the average duration of the disease before the development of carcinoma was 16 years. Shands et al, in a review of 73 cases of ulcerative colitis with carcinoma, reported the average duration of symptoms, from inception of the colitis to diagnosis of the carcinoma, as 15.3 years. In Cattell's series, it was 11.7 years.

It is not unusual to have a normal colon X-ray and still have all the proctoscopic findings of ulcerative colitis, as was true in this case. The roentgen examination may be continuously normal despite persistent or recurrent symptoms for 10-15 years according to Krasner and Palmer.
The difficulty in establishing a diagnosis of carcinoma in ulcerative colitis is typical as the gross appearance of a carcinoma arising from ulcerative colitis can frequently be deceiving. Quoting Counsell & Dukes' "the first characteristic to which we wish to draw attention is that a carcinoma following ulcerative colitis may not cause a visible tumor or ulcer on the surface but may manifest itself only as a dense fibrous looking stricture with ill-defined boundaries resembling an inflammatory rather than a neoplastic lesion". In a comprehensive pathological study of their series of cases, Shands, et al found that in 40 of 73 specimens, there was no sharp demarcation of the neoplasm from the adjacent chronic inflammatory tissue. In 6 of their cases the growth extending over a length of intestinal mucosa for distances beyond 10 cms.

In reviewing the current literature it is apparent that over 30% of the cases seen have a mucinous or colloid carcinoma as was true in the case presented.

This patient first presented herself with what was apparently a perirectal abscess, a fairly common complication. Smith and Jackman report an incidence of 8.4% of 781 cases studied, that developed an anal abscess or fistula. However, in this case, the patient really had a perforating carcinoma with abscess.

There appears to be some connection between the occurrence of pseudopolysis and the development of carcinoma in ulcerative colitis. In one series of cases an incidence of 43% was noted. It generally takes many years of repeated exacerbations before pseudopolyps develop thus partially accounting for their absence in this case.

The prognosis of patients with malignant degeneration of an ulcerative colitis is uniformly poor. In one group of cases, 57 of 73 patients were dead within 5 years and the remaining 16 had not reached their 5 year followup. Only isolated instances of 5 year survivals have been reported.

This case serves to emphasize the frequent observation which is necessary in all cases of ulcerative colitis if one is to detect the early development of carcinoma at a time when it is amenable to surgery.

SUMMARY

A case report of the malignant degeneration of an ulcerative colitis in a 70 year old female with a 2 year history of colitis, has been presented.

The incidence of carcinoma of the colon and rectum occurring in ulcerative colitis is about 6%.
Ulcerative colitis generally has its onset in the 2nd and 3rd decades. The average duration of symptoms before the development of cancer in ulcerative colitis varies between 11 and 16 years. Carcinomatous lesions rising secondarily to ulcerative colitis can easily be confused with inflammatory tissue.

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was an erosion of a branch of the cystic artery which was bleeding profusely. A cholecystectomy was performed and the cystic artery was clamped and ligated as was the cystic duct. These procedures were done with difficulty because identification of structures was obscured by necrosis and hemorrhage. A cigarette drain was placed and the patient repaired and returned to ward. Pathological diagnosis was gangrenous cholecystitis and cholelithiasis. Post-operatively the patient appeared much improved, however a great quantity of bile drained from the wound.

On April 16th the drain was removed and the patient seemed well. On April 17th the patient developed severe left lower quadrant pain and abdominal distension with diminished peristalsis. A Levine tube afforded relief.

On April 23rd patient suffered from generalized abdominal pain with nausea and vomiting. These symptoms continued and on April 27th the pain localized in the right upper quadrant of the abdomen and the patient clinically appeared jaundiced. The icterus index was 31. Impression at this time was a bile abscess and or a subdiaphragmatic abscess with secondary duodenal obstruction. A stab wound into the right upper quadrant of the abdomen was subsequently performed and 3000cc of bloody bile was evacuated.

On May 6th a huge tender mass was again palpated in the right upper quadrant and a second drainage provided 3500cc of bile. A sump drain was wired into the drainage site and 500cc whole blood were given. From May 8th until June 4th this patient had persisted clay colored stools presumed to be acholic. On June 5th the first brown stools were noted and the abdomen was soft with no masses present. The patient improved steadily and was discharged on June 9th after 60 days of hospitalization.

SUMMARY

This case presents an example of one of the complications of cholelithiasis, namely perforation of the gallbladder. The skill of the operator and existing circumstances dictate the operative procedure to be performed in such a case. In this instance we may surmise that the complications following surgery probably were caused by incomplete ligation of the cystic duct or perhaps failure to ligate accessory biliary ducts, secondary to extreme technical difficulty. The common bile duct would appear to have escaped serious damage despite its long exposure to extrinsic bile within the bile abscesses.

This case will support the theory of those who advocate the removal of any gallbladder containing calculi even if the patient in question is symptom free.
The successful treatment of a patient with severe congestive heart failure, chronic cor pulmonale and secondary polycythemia, depends in great measure on meticulous attention to detail, constant observation, ability to change direction quickly with the vast changes in hemodynamics that occur, and a basic knowledge of the underlying pathogenesis of the complicated ramifications of this "disease within a disease".

Harvey pointed out how essential it was to treat the pulmonary as well as the cardiac insufficiency and emphasized that the prognosis could be entirely dependent upon the accuracy of the original diagnosis. (The treatment for pulmonary fibrosis and for pulmonary emphysema differ, although both can produce right heart failure).

The most common causes of chronic cor pulmonale are:

1. Chronic obstructive pulmonary emphysema
2. Different types of pulmonary fibrosis
3. Granulomatous lesions resulting in fibrosis, i.e. beryllium; Boeck's Sarcoid

Of these, the first is the most common, and the fundamental disturbances are (1) Impeded air flow due to loss of elasticity of lung tissue, bronchiolar spasm, mucosal edema, and the presence of secretion and exudates; (2) Uneven distribution of alveolar air; (3) Uneven distribution of blood to the alveoli. Chronic bronchial asthma is perhaps the prototype of such a set of circumstances. These changes are to some extent reversible and do not pose the same inexorable threat prognostically as does cor pulmonale due to fibrosis, of which the outstanding cause is silicosis. In the latter instance, due to the progressive encroachment upon the vascular structure of the lung, the resultant pulmonary hypertension and its secondary train of symptoms are often found to be irreversible despite well-intentioned therapy.

Lewis et al made observations on 32 patients of cardiac output, vascular pressures, plasma and total blood volume and renal clearance.
In that group with heart failure secondary to chronic lung disease, cardiac output at rest fell in the normal range although kidney function was impaired and the filtration fraction was elevated. Patients with cor pulmonale and polycythemia were not able to increase their cardiac output adequately on exercise. Where the polycythemia had been corrected, arterial unsaturation was more severe and pulmonary artery pressures were higher than in polycythemic subjects although cardiac output rose and the efficiency of the right ventricle was definitely increased. He further concluded that severe arterial unsaturation with low oxygen tension of arterial, mixed venous, and bone marrow blood and with an excess load on the right ventricle results in the production of polycythemia and right ventricular failure. Removal of blood, therefore, though considered a good therapeutic measure because it increases cardiac output, must be accomplished with caution because one is disturbing a compensatory mechanism and may result in turn in severe oxygen deficiency.

Fowler et al3 also emphasizes the fact that the cardiac output in the resting patient with chronic cor pulmonale is low or normal for one of several reasons (1) absence of hypoxia; (2) high pulmonary vascular resistance; (3) terminal condition of the patient; (4) some unexplained factor. Historically, chronic cor pulmonale has been listed among the causes of high output failure along with Thyrotoxicosis, Beri-beri, Systemic A-V fistula, anemia, and Paget’s Disease. However, it is becoming increasingly apparent that this is not the case.

An interesting patient, illustrating some of the pitfalls in therapy and the fastidious care necessary to negotiate improvement, is presented.

C.K., a white female aged 58 years, had a history of bronchial asthma, due to multiple allergens, for 40 years. She had been otherwise asymptomatic until two to three years prior to admission when she began to have “dropsy”. Her asthma got worse, she developed swelling of the legs, had to lie propped up and couldn’t indulge in anything requiring mild exertion. Two years prior to admission she required hospitalization because of cyanosis and was given oxygen. Since then she received frequent “shots for water”, a low salt diet (which she didn’t adhere to).

Physical examination revealed a markedly cyanotic, dyspneic, edematous female whose respirations were shallow and rapid, and who had a non-productive cough. Temperature was 99.8° F.; pulse 110; respirations 32; blood pressure 130/80. Preliminary diagnosis was
pulmonary edema, bronchial asthma, and possible myocardial infarct. Ophthalmologic examination revealed Grade 2 arteriosclerotic and hypertensive retinopathy. Chest X-ray showed cardiac disease with secondary lung changes most marked in the base of the right lower lobe, prominence in the region of the pulmonary artery conus segment and right sided heart enlargement very suggestive of cor pulmonale. Restriction in the motion of both leaves of the diaphragm was thought to be due to associated emphysema. The electrocardiogram revealed right ventricular enlargement and premature contractions (auricular and ventricular). The initial, pre-treatment blood count revealed the following: Hb 99%; RBC 5,930,000; WBC 9500 with a normal differential count. In one week when treatment had achieved some measure of success, the Hb was 118% and the RBC 7,250,000.

The patient was placed on a low sodium diet, aminophyllin intravenously, mercurial diuretics, ammonium chloride, oxygen (intermittently) and digitalis (orally and intravenously). Blood volume studies (Evans-Blue Technique) revealed the plasma volume to be only slightly in excess of normal but the total blood volume was 2451 cc in excess of that predicted and the red cell volume was 2414 cc in excess, while the blood volume was 126.7 cc/kg of body weight (normal values are 76 cc/kg ± 8 cc).

Small phlebotomies performed at spaced intervals (total 1500 cc) reduced the blood volume to 97.9 cc/kg at discharge at which time the patient was symptom free. During the course of her therapy she developed a purpuric rash at a time when she was receiving only digitalis and chloral hydrate. Studies done at that time revealed the following: coagulation time 43/2 minutes; bleeding time 2 minutes; platelet count 174,000; prothrombin time 83% bone marrow examination was normal; reticulocyte count was 0.1%. Urinalysis showed 1+ to 2+ proteinuria, some hyaline casts, and microscopic hematuria and pyuria. The medications were both discontinued as the rash became generalized and confluent and the congestive failure was largely controlled. Despite probable contraindication, hydrocortisone was administered orally, along with pyribenzamine.

She made a very satisfactory recovery from the allergic purpura (chloral hydrate was thought to be the cause here). She was placed on acetazolamide (Diamox) as a sole medication and she remained well, free of edema and all signs and symptoms of her disease at the time of her discharge from the hospital two and one-half months after admission.
Chest X-ray on discharge showed marked decrease in secondary infiltration in the right lung over that of the last examination. Some prominence of the left ventricle remained.

Schwartz used Diamox in a study of 17 patients with severe congestive failure due to cor pulmonale. Doses of 500 mgm once daily to 500 mgm every six hours were given till free of edema. He concluded that this diuretic had its greatest effect in these particular patients and little effect in congestive failure due to arteriosclerotic, hypertensive, or valvular heart disease.

CONCLUSION

An interesting patient is presented, illustrating many important facets in the treatment of chronic cor pulmonale with severe congestive failure and secondary polycythemia. The efficacy of Acetazolamide (Diamox) is mentioned. The importance of performing phlebotomy in small amounts (250 cc) to avoid disturbing the compensatory mechanism against anoxemia is stressed. It is pointed out that a patient with this condition can, with proper care, receive cortisone or its derivatives without dire effect. And lastly, that many of the features of this disease state are remediable and to some extent, reversible.

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4. Schwartz, William; Relman, Arnold S. & Leaf, Alexander. Oral Administration of a Potent Carbonic Anhydrase Inhibitor ("Diamox") III. Its use as a Diuretic in Patients with Severe Congestive Heart Failure due to Cor Pulmonale.
STATISTICAL REVIEW AND SUMMARY OF THE FIRST YEAR OF A PROCTOLOGY RESIDENCY AT THE ALLENTOWN HOSPITAL

This is a report of the cases performed on the Proctology Service by the Resident and Staff of the Allentown General Hospital from July, 1954 to June, 1955 inclusive. It also includes other activities of the resident carried out during that period. There are four members of the Proctology Department and the statistics presented in this paper are drawn from their cases.

The Proctology Residency of the Allentown General Hospital is fully approved by the American Board of Proctology as well as the Fellows of the American College of Surgeons. One resident, who has had a minimum of two years and preferably three years of surgical training, is taken for a two year period. This is a review of the first year of residency.

During the six month period from January to June, 1955 the resident in Proctology alternated on surgical call every fourth night as a trial period to see whether this would be worthwhile, i.e. in number of cases assisted and performed. These cases are also included in this report.

From July, 1954 to June, 1955 a total of 651 cases were operated upon by members of the Proctology Department. Of these cases 586 were minor (91%) and 62 cases were major (9%). Of the 648 cases, the resident was present at 564 cases (87%). It was not possible for the resident to be present at all the minor cases since, frequently, more than one proctologic procedure was being performed at the same time in which case the resident would assist the senior man. However, the resident was present at all major cases performed as these were scheduled by the members of the department so that there would be no conflict. In addition to the 564 cases, the resident assisted and/or performed 21 cases on the general surgical service for a total of 585 cases.

In Table I all of the major cases performed on the Proctology service are listed. As can be seen, 18 different major procedures were performed for a total of 62 cases; of this number the resident performed 32 (51%). The overall mortality rate for this group was 4.8% (3 patients), the causes of death being mesenteric thrombosis, pulmonary embolus and Hodgkin's disease, respectively.

Table II lists those major cases performed by the resident. Included and so designated are five cases which were done on the surgical service. Thus the resident operated on a total of 37 major cases. Of the 32
cases performed on the Proctology Service by the resident, 8 (25%) were ward patients.

There were 586 minor cases performed on the Proctology Service (Table III). Of this group, the resident assisted on 439 and operated on 63 (14%). Table IV shows the number and type of the various minor procedures done by the resident. Of the 63 cases, five were on the ward service (8%).

To summarize, the resident performed 100 cases during this first year and assisted on 485 cases.

The resident is required to dictate all cases in which he assists and is responsible for the pre and postoperative care of these patients. In addition to the operative work, the resident is responsible for holding Proctology Clinic twice weekly and it is here that the resident carries out his postoperative followup of ward surgical patients as well as ambulent proctologic procedures. During the year covered by this study, 156 clinic visits were tabulated. A special room has been set aside for the members of the Proctology Department and here private and ward patients are examined and treated. It is well equipped with table, suction, instrument cabinets, etc. A total of 144 sigmoidoscopies were carried out by the resident during the year.

Aside from his hospital work the resident is required to spend a month (Monday and Friday afternoons) in the office of the chief of the department where he learns at first hand office procedure and sees the problems that arise in an office practice and how they are managed.

The resident attended the following meetings during the first year: all meetings of the Philadelphia Proctologic Society; the annual meeting of the American Proctologic Society in New York (June, 1955); the Proctologic Section of the F.I.C.S. in Chicago (Sept. 1954); the sectional meeting of the F.A.C.S. in Cleveland (Feb. 1955) and the Gastro-enterology and Proctology Section of the A.M.A. at Atlantic City (June, 1955).

SUMMARY

1. A total of 648 cases were operated upon by the Proctology Department from July, 1954 to June, 1955.
2. The resident was present at 585 operative cases during the first year. Of this number, 564 were on the Proctology Service.
3. 83 cases were major (62 from Proctology service) and 502 were minor.
TABLE III
MINOR CASES — PROCTOLOGY SERVICE

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemorrhoidectomy</td>
<td>314</td>
</tr>
<tr>
<td>Hemorrhoidectomy and Fissurectomy</td>
<td>145</td>
</tr>
<tr>
<td>Fistulectomy</td>
<td>67</td>
</tr>
<tr>
<td>Incision and Drainage, ischiorectal and pelvirectal abscess</td>
<td>20</td>
</tr>
<tr>
<td>Excision of Pilonidal cyst</td>
<td>12</td>
</tr>
<tr>
<td>Sigmoidoscopy</td>
<td>10</td>
</tr>
<tr>
<td>Suture, postoperative hemorrhage</td>
<td>5</td>
</tr>
<tr>
<td>Excision of rectal polyp</td>
<td>5</td>
</tr>
<tr>
<td>Rectal biopsy</td>
<td>4</td>
</tr>
<tr>
<td>Local excision squamous cell tumor</td>
<td>1</td>
</tr>
<tr>
<td>Repair of mucosal prolapse</td>
<td>1</td>
</tr>
<tr>
<td>Coccygectomy</td>
<td>1</td>
</tr>
<tr>
<td>Excision sacrococcygeal epidermal cyst</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>586</strong></td>
</tr>
</tbody>
</table>

TABLE IV
MINOR CASES PERFORMED BY THE RESIDENT—PROCTOLOGY SERVICE

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemorrhoidectomy</td>
<td>42</td>
</tr>
<tr>
<td>Fistulectomy</td>
<td>8</td>
</tr>
<tr>
<td>Hemorrhoidectomy and Fissurectomy</td>
<td>6</td>
</tr>
<tr>
<td>Excision pilonidal cyst</td>
<td>2</td>
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<tr>
<td>Incision and drainage of ischiorectal abscess</td>
<td>1</td>
</tr>
<tr>
<td>Suture postoperative hemorrhage</td>
<td>1</td>
</tr>
<tr>
<td>Coccygectomy</td>
<td>1</td>
</tr>
<tr>
<td>Excision sacrococcygeal cyst</td>
<td>1</td>
</tr>
<tr>
<td>Excision rectal polyp</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>63</strong></td>
</tr>
</tbody>
</table>
COMBINED RADICAL JAW RESECTION AND RADICAL DISSECTION ON THE CERVICAL NODES FOR INTRA-ORAL MALIGNANT LESIONS:
(Rationale of Treatment)
By MILTON TUERK, M.D., D.D.S.

"The angle of the mandible for many years has been the No Man's land of the surgical specialties: the general surgeon, the therapeutic radiologist, the plastic surgeon, the otolaryngologist, the oral surgeon and the dental surgeon all meeting warily at this anatomic point, with the result that none has staked out a valid claim."

The credit for the development of neck dissection as a curative operation for cervical metastasis belongs mainly to George Crile Sr. In the 1880's there is no mention of any surgical procedure capable of arresting or curing mouth cancer once spread to the cervical glands had occurred. Cheilus in 1847 had noted that the cervical lymphatics became hard and painful; but that once this had occurred, complete removal of the disease had become impossible. In 1847 Warren attempted to remove cancer of the neck with an incision from masseter to clavicle. In 1880 Kocher described a procedure in which he removed the tongue for cancer through the submaxillary triangle; first clearing out the submaxillary and sublingual salivary glands, and lymphatic glands. Later he introduced the Kocher incision for more extensive and adequate approach and for a more thorough removal of the lymphatics. Many have done neck dissections before Crile, but he was the first to design and practice a systematic operation of neck dissection on an anatomic basis, in 1906.14

In the twentieth century much progress has been made in the use of neck dissection for oral cancer. Many schools of thought have developed ranging from radical total unilateral and/or bilateral prophylactic neck dissection to that of elimination of the primary with watchful waiting for the neck metastasis to occur. Bloodgood was the first to devise a limited operation through an external approach for excision of the jaw when involved by tumor. This was discarded almost completely because of the high mortality and low cure rate; plus the evolvement of radiation therapy. The latter though appearing so promising has fallen far short of expectation. However through the frequent development of radionecrosis of the mandible, radiation therapy served as an impetus for the development of techniques for the intra-oral excision of the mandible. Gradually these techniques were applied to cancer involving the mandible.
In the interim, the rationale for neck dissection had developed, and became accepted as the treatment of choice for oral cancer with cervical metastases. One of the earliest planned treatments consisted of radiation to the primary, and surgical excision of the cervical metastasis. During this time the concept of the ideal cancer operation had developed, which consisted of surgical excision of the primary lesion, the intervening lymphatics, and the regional lymph nodes. This principle was best exemplified in the Halsted operation of radical mastectomy for breast cancer, and the Miles abdomino-perineal operation for rectal cancer. This principle was termed by Pack "Excision and dissection in continuity". Hayes Martin and associates at Memorial Hospital in New York applied this concept to intra-oral cancer and worked out a technique of the combined operation basically as used today. The establishment of priority for such a complex surgical procedure is quite difficult to do. Undoubtedly many have performed a similar procedure where the features of the growth were best managed by such an operation. However, priority must be claimed for those who tended to routinely practice and advocate such a procedure for intra-oral cancer. In this respect we must not forget the monumental work of Grant Ward of Baltimore, who as early as 1932 had started performing combined neck and jaw procedures.

At Memorial Hospital the combined operation has been referred to for many years as the Commando operation. This name has spread rather far, and as such I wrote Dr. Hayes Martin concerning its conception. I would like to quote from his reply:

"The term commando as applied to the combined operation somehow dates the establishment of this operation as a safe and justifiable procedure of this (Memorial) hospital.

In brief, at the time of the Dieppe raids in World War II by the Canadian Commandos, which were somewhere along in the early 1940's (the operation had been established and was being performed rather routinely at this hospital), the term commando was frequently used to define these exploits, and the House Staff named this operation the commando. The term has stuck, and for want of a better one it is still referred to as Commando; tongue, jaw, larynx or thyroid — meaning that the primary in one of these or other sites has been removed in combination with a neck dissection."

The operation is also referred to as the combined, composite, or as the radical jaw resection and neck dissection.

Oral cancer comprises 3 to 4% of all human cancer. If we include the lips, and tonsillar region, this figure has been estimated as high
as 8% by Ward. The greatest incidence occurs in the 5th and 6th decades with a ratio of 5 males to 1 female. 75% of these lesions are well differentiated with 90% of them occurring as squamous cell epithelioma. All tend to metastasize to the neck nodes via the lymphatics and tend to remain limited to the supraclavicular area for some time before fatal extension takes place.

Before 1945 there wasn't a single 5 year cure in patients with intraoral cancer invading the mandible; with the longest survival recorded at 18 months. Radiation treated patients were dead in a year.

The mouth is one of the most accessible areas of the body for clinical observation. No preparation of patient with enemas, squinting through a long tube, sleight of hand, magic clinical touch etc., is required for a thorough and adequate clinical inspection of the oral cavity. Few people today ever go through life without some sort of oral examination by his dentist or physician. Notwithstanding the accessibility of the oral cavity, and the tendency of oral neoplasms to localize in the neck nodes for a long time before disseminating widely, the cure rate for oral cancer is extremely low. Even in the best of hands it has been quoted roughly as 25% by Ward, Slaughter and others.

Cancer of the mouth may be subdivided into groups based on the anatomy of origin, that is; lip, cheek, gum, floor of mouth, tongue, palate, and tonsil. Each presents distinct clinical problems with regard to management.

The anatomical basis for the combined operation is based on the lymphatic drainage of the mouth.

The posterior portion of the cheek drains into the parotid nodes.

The anterior portion of the cheek drains into the submaxillary nodes, and the nodes at the angle of the mandible.

The deep lymphatics of the cheek drain into the facial nodes; the lower gingival lymphatics unite into several chains and pass over the outer surface of the mandible opposite the last molar tooth, and enter the submaxillary nodes. The lymphatics of the palate are continuous with those of the upper gums and enter several chains, then pass backward to the superior constrictor of the pharynx and enter the deep cervical nodes along the internal jugular vein above the posterior belly of the digastric muscle. Some soft palate and nasal mucous lymphatics extend backward through the superior constrictor of the pharynx into the retro-pharyngeal nodes; and others pass out from the mucous membrane of the posterior faucial pillars to drain into the deep superior cervical nodes. Lesions of the hard and soft palate, upper gingiva, and buccal mucous membrane usually metastasize late.
The lymphatics of the floor of the mouth, lower gingiva, and tongue (except the anterior tip) pass through the periosteum of the mandible on their way to the nodes in the submandibular area. As early as 1902 Polya and Novratil published an anatomical study of the lymphatics of the head and neck, which was later confirmed by others. It was shown that in 50% of normal individuals the lymphatics of the tongue and floor of the mouth pass through the periosteum of the mandible on their way down to the submaxillary triangle of nodes. Metastasis from these locations and from tonsil are usually earlier and more extensive. The role of the mandibular periosteal lymphatics as a chain in connecting the mouth and neck was demonstrated by Ward many years ago when he made mention of the early involvement of the mandible with cancer of tongue and floor of the mouth.

The plan of removal of the primary lesion as a separate maneuver with the eradication of related nodes as a matter for later consideration as recently advocated by Hayes Martin has been deplored by Carroll. He states that this plan of discontinuous treatment represents a compromise of a good cancer operation. In 180 cases he was able to subdivide 106 lesions into four main groups, which all produce a high percentage of early node metastasis but the lesions are so located that the primary and secondary lesions may be excised in continuity with the inclusion of a hemimandibulectomy to complete and facilitate the primary excision. In these four groups:

**Group 1. Buccal mucosa cancer:** 40% showed node metastasis and perimandibular lymphatics were almost always involved even without X-ray evidence.

**Group 2. Lower gingiva:** showed 65% metastasis with 66% showing local contiguous spread. He treated this group with X radiation if the primary was less than 2 cm.; then if there was no local recurrence, he removed the enlarged nodes by neck dissection. 80% of his cases were not controlled by this technique, and a high percentage of osteoradionecrosis of mandible resulted. Mattich and Mechum reported that of 101 cases of gingival cancer treated with X radiation there was no cure if nodes or bone were involved. Even without clinical evidence of metastasis they found that 30% of their dissected specimens yielded positive nodes.

**Group 3. Cancer of anterior tongue and floor of the mouth:** metastasis to neck nodes in an average of 65% of the cases, draining via mandibular perilymphatics. 37% of this group yielded positive nodes even though not clinically palpable.
Once the lesion approaches the mandibular lymphatics we must resort to radical primary excision with node dissection and hemi-mandibulectomy in continuity if we are to increase our salvage rates. The tendency at present is to withhold this procedure from patients with a lesser degree of malignancy. If we were logical we would use as our procedure of choice complete homolateral neck dissection and hemimandibulectomy and hemiglossectomy, in ALL instances of moderately advanced carcinoma in this region.\(^1\) The mandibulectomy is essential in some cases to diminish local recurrences, or to eliminate the pain of radionecrosis; and in addition adds thoroughness to the procedure and facilitates closure of the defect in the floor of the mouth. It has been shown (Barclay, Pelter and Kremen)\(^5\) that a continuity excision of intra-oral lesions and neck dissection did not materially increase their wound complications or morbidity.

Hendrick & Ward\(^3\) list as contraindications to the combined operation the following:

1. Small carcinoma of tip of tongue
2. Very small malignant ulcers of anterior 1/3 of floor of mouth beneath the tongue
3. Early low grade carcinoma without palpable lymph nodes that show good response to radiation therapy.
4. Patients who refuse adequate surgery
5. Poor operative risks
6. Cancer of tongue extending beyond the midline
7. Advanced cases that are unresponsive to radiation therapy

They emphasize the composite operation for:

1. Cancer of floor of mouth and tongue
2. Tonsil cancer
3. Pharyngeal wall cancer
4. Faucial pillar
5. More extensive lower gingival cancer

The advantages of the combined operation are:

1. Adequate and thorough excision in continuity of all the cancer bearing lymphatics. It removes the primary site of the malignancy and avenues of extension with the lymph node bearing tissue en bloc.
2. Removal of the jaw increases the exposure at operation.
3. Permits anatomic visualization of the important blood vessels and nerves in the region.
4. Facilitates closure of the defects in the floor of the mouth.
5. Removal of the jaw gives adequate access to the posterior part of tongue, tonsil and pharyngeal wall.

Notwithstanding the low salvage rate for cancer of the mouth (especially tongue, gingiva, and floor of mouth, tonsil) many surgeons today still temporize in their operation. If we are to perform thorough and adequate cancer surgery we must follow the dictates of a good cancer operation; performing a complete and thorough excision in continuity of all avenues of spread, even if this means a hemimandibulectomy as part of the procedure. The deformity produced, surprisingly, is not the horrible and disfiguring result that one would expect from such a mutilating procedure. To date several series of combined operations are now in progress, but as yet no adequate 5 year studies are available. However, when one is confronted, as in the mouth, with a neoplasm that is easily accessible, with a low incidence of distant metastasis beyond the neck, then it is not beyond the realm of probability that a thorough cancer operation will increase the salvage rate. The problem now is one of convincing the surgeon of the efficacy of this procedure when indicated, and his convincing the patient of the necessity for a more radical approach to this problem.

BIBLIOGRAPHY

2. Personal Communication
NORTH AMERICAN BLASTOMYCOSIS,
GILCHRIST'S DISEASE
OR CUTANEOUS BLASTOMYCOSIS
MEREDITH J. PAYNE, M.D.

In the differential diagnosis of any chronic cutaneous ulceration the
possibility of a granulomatous lesion such as tuberculosis, blastomy-
cosis, or actinomycosis should be considered as well as the more common
and more likely lesions such as basal cell carcinoma or squamous cell
carcinoma. The following is a case report of a patient presenting with
an ulcerative lesion of the thigh in which the diagnosis of carcinoma was
considered most likely. A pre-operative biopsy was not obtained.

CASE REPORT

C.I., an 80 year old retired white male, was admitted to the Allentown
Hospital on April 6, 1955 giving a one year history of an ulcerative lesion
of the anterior aspect of the right thigh. One year prior to entry the
patient had noted the appearance of a small ulcer. This lesion in-
creased in size and was observed to bleed easily. The patient did not
seek medical attention for the lesion until two weeks prior to entry.
Past and personal histories were non-contributory.

Examination on admission revealed the patient to be a well-developed,
well-nourished alert white male in no acute or chronic distress. The
chest was noted to be minimally emphysematous. Examination of
the thigh revealed a reddish, friable, ulcerative lesion of the anterior
aspect measuring 10 cm. in diameter with a reddish, granular base.
See photo Fig. 1. On 4/8/55 the ulcer was excised down to the fascia
of the thigh with a margin of normal skin surrounding the lesion. A
split thickness skin graft was applied to the defect. Although the
patient had a negative chest X-ray on admission he developed evidence

![Figure 1](image1.png)
*Photo of lesion of anterior aspect of thigh. 4-4-55*

![Figure 2](image2.png)
*Photo of thigh following excision of lesion and skin graft 5 mos. post-
operatively*
of a right lower lobe pneumonitis on his 8th post-operative day coincidental with a pulmonary infarction. A one-month follow-up examination revealed resolution with residual fibrosis. The patient was discharged on 5/15/55 after an otherwise uneventful course. Examination seven months post-operatively revealed no evidence of recurrence of the lesion. See Fig. 2.

The pathological specimen revealed on microscopic examination in addition to marked proliferation of the epithelial layer, the occasional presence of foreign body giant cells and Langhans giant cells containing large eosinophilic inclusions showing in some places doubly contoured outer layers. These were noted in micro-abscesses and in clusters. See Fig. 3. Noted beneath the epithelial hyperplasia was a fibrous proliferation containing plasma cells and occasional eosinophiles. Slides were stained with Schiff’s reagent and showed infiltration with the above described organisms which in some areas showed budding.

Figure 3
Photomicrograph showing micro-abscesses and clusters

This picture of hyperkeratosis, acanthosis, pseudoepitheliomatous hyperplasia, with focal abscesses and a chronic granulomatous inflammatory process with the presence of doubly contoured, rounded inclusion structures is consistent with the diagnosis of cutaneous blastomycosis. See Figs. 4 & 5.

Figure 4
Photomicrograph showing giant cells

Figure 5
Photomicrograph of specimen showing granulomations inflammatory process.

Until recently the division of the disease Blastomycosis into two entities: generalized and cutaneous, each with distinct and different clinical manifestations and prognosis was unchallenged. It was believed that the generalized form of the disease was contracted by in-
halation giving rise first to pulmonary lesions and followed by hematogenous spread resulting in multiple abscesses; the cutaneous form was considered strictly a localized process. In 1951 Schwarz and Baum of Duke University Medical School contended that the entire disease was predominantly a pulmonary infection with or without cutaneous or other manifestations. In 24 out of 25 patients with the apparently cutaneous form of the disease reported by them “abnormal” pulmonary findings were recorded on thoracic X-rays. More recently in a review published by Kunkle et al. from the Mayo Clinic a series of 90 cases with either a proved or presumptive diagnosis of blastomycosis included 54 in which the disease was apparently limited to cutaneous manifestations (the other 36 were reported to have systemic involvement). In 14 of 31 patients with thoracic roentgenograms “abnormal” pulmonary findings were recorded. Both writers stress the tendency for the disease to heal spontaneously, especially in the lung. Thus, it is their contention that the disease is primarily pulmonary with or without cutaneous, bony, or other manifestations. Many patients present however, with only cutaneous or osteomyelitic lesions from which it is to be assumed that the pulmonary lesion has healed at the time the patient presents for therapy.

It had also formerly been believed that the disease is most frequently reported in the Southeastern and North Central States. In 1949 the Duke University group reported 50 cases at which time North Carolina was considered an endemic zone for the disease. In the Mayo Clinic report a large percentage of their collected cases were from the upper midwestern states. Another refutation promulgated by the latter group was the lack of correlation of occupation or economic status with the incidence of the disease. It had previously been stated that it was a disease of farmers or of persons of poor economic status. This was not confirmed by the cases seen at the Mayo Clinic which included a wide range of occupations and patients of a generally middle class economic level.

The age distribution is from 20 to 60 with the average age 46.6 according to the Mayo Clinic report. The oldest patient reported by them was 84 and had a cutaneous lesion of the nose. The sex ratio of incidence is Male: Female: 9:1. Ninety per cent of the patients were white.

The disease arises from an exogenous source of infection and presumably is not contagious; it has an incubation period of 1 to 2 weeks as well as can be determined.

Diagnostic tests for the presence of blastomycosis infection include Complement Fixation and Skin Tests. The Complement Fixation Test
of Smith and Martin was first described in 1935 and the Skin Test in 1936. Complement fixing antibodies are readily demonstrable in the generalized form of the disease. The titre of complement fixation is directly correlated with the prognosis. No fixation of complement occurs in the undiluted sera of patients with localized cutaneous forms such as the case herein presented. Most patients with any manifestations of the disease are hypersensitive to fungus or fungus products as shown by skin tests with vaccines or extracts of Blastomycosis dermatitidis. Diagnosis is not to be confirmed by any method less than either biopsy and microscopic diagnosis or by culture of the organism from the lesion. Frequently the organism suspected will fail to be found on histologic study and appropriate culture methods are then necessary. Blood agar or enriched media are more effective in the culture of the organism than is Sabouraud’s.

Cutaneous forms of the disease generally respond to iodides, X-ray therapy, or surgical excision. The systemic forms are resistant to therapy generally. The iodides have been extensively in cutaneous and produce healing over greater part of the affected region; but small patches usually at the verrucous borders have been observed to flare up later. Roentgen ray therapy may also be effective and has been used when the initial size of the lesion has been reduced by the use of iodides.

The first successful surgical excision of a local cutaneous lesion was reported by Gilchrist in 1896. According to Ormsby and Hamilton recurrences following surgical excision are not infrequent.

Fungicides such as undecylinic acid have been used in the past. More recently stilbamidine and propamidine have been studied. These aromatic diamidines are related to compounds effective against trypanosomiasis and leishmaniasis. In vitro propamidine produces inhibition of the organism. The chief objection to the use of the stilbamidine propamidine combination is its toxicity. The drug is given intravenously and reportedly may produce a sudden circulatory collapse and also a much delayed trigeminal neuropathy. There is also some indication that renal and hepatic toxicity may be present. As outlined by Fink the following has been given: First course of 1.8 gm. of stilbamidine produced 50 to 60% involution of the lesions. No immediate toxic reaction resulted. A rest period of 44 days was followed by a 2nd course of 1.95 gm. complete regression of the lesions was thus accomplished by a total of 3.75 gm; no recurrence was noted 3 months later.

Surgery, iodides and the diamidines have also been used individually in combinations in the treatment of pulmonary and bony lesions.
This case then represents the situation of a chronic cutaneous ulceration which by history and physical findings was compatible with the diagnosis of a cutaneous malignancy. It was so treated, i.e., wide excision and skin graft, with considerable care taken to insure adequate margin of resection both according to depth and lateral margins. The lesion has not recurred one year post-operatively.

The diagnosis histologically was compatible with cutaneous blastomycosis. Surgical excision has been adequate. It may then be postulated that in the isolated cutaneous lesions wide surgical excision such as in the treatment of malignant lesions may be considered both adequate and expedient therapy.

**SUMMARY**

A report of a case of chronic mycotic dermatosis presumed to be cutaneous blastomycosis in an 80 year old white man treated by surgical excision and skin grafting is presented. The incidence, differential diagnosis, geographic distribution, age, sex distribution, etiology, diagnostic measures, epidemiology, and the treatment of the disease are discussed briefly.

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6. Ackerman: Surgical Pathology. Page 64, C. V. Mosby, St. Louis, 1953
The Editorial Committee received the following letter from Dr. William C. Troxell, Secretary of the Executive Committee of the Allentown Hospital Staff, who requested publication in this issue of the Journal.

September 24, 1956

John J. Bernhard, M.D., F.A.C.S.
33 North 17th Street
Allentown, Pennsylvania

Dear Doctor Bernhard:

At a meeting of the Executive Committee of the Staff of the Allentown Hospital, held September 18, 1956, the inadvertance relative to placing your name on the Auxiliary Staff received unanimous reconsideration. Your past and present services and loyalty to our Institution command your name be placed on the Consulting Staff in Obstetrics.

We assure you this error was an "act of omission".

Sincerely yours,

Wm. C. Troxell, M.D.,
Secretary, Executive Committee

WCT/mtt

It was also suggested by the Executive Committee that the following corrections should be made as regards titles for the following who are now members of the Consulting Staff:

Fred G. Klotz, M.D., F.A.C.S.
Henry Guth, M.D., F.A.C.S.
John J. Bernhard, M.D., F.A.C.S.

We would like to announce that the Editorial Committee has no function whatsoever as far as Staff appointments are concerned and that we do not accept any responsibility whatsoever for errors as far as the Allentown Hospital Staff is concerned. In order to assist the Executive Committee, however, we would again like to stress that in the future should any Staff member receive any recognition from any surgical or medical organization, the Secretary of the Executive Committee should be notified so that proper recognition can be given when the staff roster is prepared by the Executive Committee.