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GENERAL STAFF MEETING
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CONTENTS

I. CASE REPORT

CARCINOMA OF THE OESOPHAGUS, GASTROSTOMY. Path. Randall.

The case is that of a 51 year-old, white male whose occupation has been that of a section gang laborer, admitted to the University Hospitals 6-11-31 on the Nose and Throat Service, transferred to the Surgical Service 6-25-31, and died 6-27-31 (16 days).

Dysphagia

About 1-1-31 - (6 months ago) - increasing difficulty in swallowing. At first, patient could only eat small quantities of food.

5-15-31 - Stopped work on account of illness.

Five Months

6-4-31 - Seen in University Dispensary. Patient could only eat liquid foods. Lost six pounds in weight in six months. Pain in swallowing. Feels as though something is obstructing his swallowing. Clears his throat continuously. Has had slight dyspnea when working. Complains of a considerable amount of mucus collecting in throat. Examination: Throat - few hard cervical nodes; some tenderness in neck on palpation. Evidence of cachexia.

Positive X-ray

6-5-31 - Nose and Throat - Dispensary. Unable to get cooperation for mirror laryngoscopy on account of language difficulties. Probably a malignancy of the esophagus which in the presence of hoarseness suggests upper end with laryngeal involvement. (Questionable tumor mass in larynx, an area of "pasty" wall with esophagus.) State Board, Kahn, and Wassermann are negative. X-ray of esophagus: Conclusion - Carcinoma of upper esophagus.

Advanced Malignancy

6-11-31 - Admitted to University Hospitals. Complaints: Inability to swallow; mucus in throat; loss of weight; has had hemoptysis several times during the last few months. Examination: Temperature 99.4. Pulse 100. Respirations 20. Blood pressure 110/80. Lungs - some coarse rales in chest; emphysematous percussion note of chest; possible mediastinal mass. Abdomen - palpable liver; palpable mass in epigastrium. Genitals - hypospadia; inguinal glands palpable. Laboratory: Blood - Hb. 68%, rbc's 3,200,000, wbc's 9,900, L 15, P 85. Urine - negative. Progress - General diet.

6-14-31 - Expectorates mucus streaked with bright red blood.

6-16-31 - Patient coughs a great deal. Expectorates some sputum. Temperature 99.8. Pulse 95. Respirations 20.

Oesophagoscopy

6-17-31 - Coughs occasionally with expectoration of sputum. Esophagoscopic examination: A large carcinomatous mass at the upper end of the esophagus. This mass is relatively large and shows ulceration. Advised transfer for operation.

6-19-31 - Considerable mucus in throat. Rather uncomfortable. Coughs a great deal.

6-20-31 - Seems very weak with some mucus expectoration. Does not complain.

6-21-31 - Appears tired. Still complains of choking sensation of throat. Temperature 99.4, Pulse 90. Respirations 20. Weight 108#.

6-23-31 - Expectorating blood streaked sputum.

Gastrostomy

6-25-31 - Surgical consultation: Will accept transfer for gastrostomy. Surgically prepared.

6-26-31 - Complains of being very weak. 1:30 P.M. - M.S. gr. 1/6, atropine sulphate gr. 1/180. Patient returned from operating room in fairly good condition. Conscious. Pulse 100. Respirations 22. Blood pressure 128. Intravenous of 10% glucose in normal saline 3000 cc. started. 5:30 P.M. - M.S. gr. 1/4. Patient voided involuntarily (?). Very noisy and restless. Out of bed twice. 9:00 P.M. - seems irrational. 10:30 P.M. - sleeping.

Exitus

6-27-31 - Liquid diet. 12:55 A.M. - M.S. gr. 1/4. Patient now seems very restless with labored breathing. Considerable amount of green drainage from

ube. 4:45 A.M. - slept for a short eriod again. 6 A.M. - voided 150 cc. 0 A.M. - Alternate feedings of milk nd cream and eggnog through gastrostomy ube. 2 A.M. - throat filled with mucus. reathing labored. Put on serious. 9 P. . - patient is very restless. 10 P.M.- oided involuntarily. 10:10 P.M. - atient ceased breathing.

utopsy

The body is that of a well-developed, oorly nourished, white male, weighing pproximately 130#, and measuring 165 m. in length. Rigor is present. Hypo- tasic is purplish and posterior. There s no edema, nor jaundice. The pupils re dilated.

he diaphragm is at the 4th interspace n the right and 5th rib on the left. here is an upper left rectus incision, .1 cm. in length, and a drainage incision o the outer side of this incision about .5 cm. in length through which a astrostomy tube (catheter #12) extends. he incision is covered with bandages. here is an extensive scar over the shaft of the penis which is altogether utaneous.

Peritoneal Cavity. The subcutaneous at in the anterior abdominal wall is bout 1.5 cm. in thickness. The upper idline is somewhat edematous. There is a hematoma to the lateral side of the in- ision, measuring about 3 cm. in diameter. It is noted that the tube (which is spoken bout above) extends into the stomach just above the pyloris. The stomach had been sutured to the anterior abdominal wall by several interrupted catgut sutures. The tube is surrounded by the mesocolon. There is a slight amount of localized peritonitis but this is not very exten- sive. There is a large, firm mass extending above the pylorus into the mid- dle and upper third of the stomach which is undoubtedly carcinomatous. There are several large nodules in the lesser peritoneal cavity and also around the head of the pancreas. There is a large mass in the wall of the stomach, poster- iorly in the middle third, which fixes the stomach to the posterior abdominal wall. The liver is not enlarged below the costal margin. There is a small nodule in the anterior surface of the liver in the right lobe, measuring about cm. in diameter, which has the general appearance of carcinomatous metastasis.

The Pleural Cavities are both obliterated by dense adhesions between the parietal and visceral pleurae. There is no increase in fluid. The or- gans are in normal relationship to one another. The Pericardial Sac contains about 100 cc. of clear, straw-colored fluid. There is a chain of lymph nodes in the anterior and posterior mediastinum extending from the jugular notch down to the diaphragm. These are more or less discreet but on section are quite firm and not unlike carcinomatous infiltra- tion into the mediastinal lymph nodes. They become much more abundant higher in the mediastinum.

The Heart weighs 305 Gm. and is quite flabby. The surface contains a few hyaline plaques. The musculature is somewhat pale. The endocardium is smooth. There is no evidence of valve defect. The coronary vessels are smooth. The Root of the Aorta shows early intimitis.

The Right Lung weighs 950 Gm., the Left 650 Gm. The bronchi contain a hemorrha- gic exudate which is fairly extensive. There is some thickening around the hilum of both lungs but no definite infiltra- tion or metastasis can be definitely made out. The bases of both lungs are quite consolidated and non-air containing, and on section reveal the smaller bron- chicles and alveoli to contain a more or less purulent exudate. The picture is that of an extensive bronchopneumonia with emphysema in the upper lobe.

The Spleen weighs 260 Gm. and is quite soft. The capsule is wrinkled and pur- plish-gray in color. On section, the pulp is quite soft and scrapes very easily. The malpighian corpuscles are distinct.

The Liver weighs 1750 Gm. The superior surfaces of the right lobe contain a metastatic nodule about 2 cm. in diameter, round grayish-yellow in color, and on section no other nodules are found. The parenchyma of the liver is somewhat pale.

The Gall-bladder is distended with dark, greenish colored bile. There is no evi- dence of obstruction to the biliary pas- sages although there are numerous, large nodules around the ampulla of water and common duct.

The Gastro-Intestinal Tract. The eso- phagus is fixed in the posterior media- stinum due to an intrinsic mass in the upper thoracic portion just on the level

f the jugular notch. There is an extension outward from this mass into the ediastinal structures involving the lymph odes in this region and forming a definite obstruction to the lumen of the sophagus. The infiltration of the esophagus continues downward to about 2 cm. bove the cardiac end of the stomach. The sophagus is extensively ulcerated. The all is thickened by firm, dense, arcinomatous masses. The external appearnce of the stomach was described above. he large mass in the posterior portion of he middle third of the stomach appears to e extensively ulcerated; in the middle ortions of the mass, the margins of which re elevated, rounded. (Note: This may e another primary carcinomatous mass, owever, but is probably a transplant nstead of a direct extension from the above arcinomatous mass in the esophagus.)

Pancreas.

There are numerous nodules on the pancreas which give the appearance, more or less, of metastasis to the lymph nodes in this region. They are quite large and discreet. The body and head of the pancreas show no marked pathological change.

The Adrenals are two in number and normal.

The Right Kidney weighs 180 Gm., the Left 180 Gm. The capsules strip easily. The cortex and medulla are distinct. The glomeruli are distinct. There is some congestion, otherwise there is no pathological change found in the kidneys.

The Bladder is distended with about 500 cc. of clear urine.

The Prostate is enlarged, and principally that of a pronounced prostatic hypertrophy being about 2+ on the basis of 3 induration.

The Aorta shows early arteriosclerosis.

The Head is not examined.

Diagnoses:

1. Carcinoma of the esophagus with metastases to the regional lymph nodes; metastases to the stomach, liver and nodes in those regions.
2. Postoperative gastrostomy.
3. Emaciation.
4. Chronic bilateral pleurisy.
5. Pericardial effusion.
6. Advanced bronchopneumonia.
7. Localized peritonitis.
8. Postoperative hematoma of the abdominal wall.
9. Acute splenitis.
10. Cloudy swelling of heart & kidneys.

Note: Age 51, sex - male, 6 months' history?, extensive involvement, including stomach.

II. CASE REPORT

CARCINOMA OF THE OESOPHAGUS. GASTROSTOMY.

Path. Pearson.

The case is that of a white female, 61 years of age, admitted to the University Hospitals 5-7-31 and died 5-16-31 (10 days).

Dysphagia

8- -30 - Patient experienced difficulty in swallowing food. The food seemed to lodge in the chest. She could get it down by taking small amounts of food with water. Anorexia set in at this time.

Four months

12- -30 - The difficulty became more progressive.

Eight Months (Diagnosis)

3- -31 - Trouble became so bad that patient could hardly take any food. Liquids, such as milk, could not be retained. Lost 60# in the preceding month. Went to Rochester where carcinoma was diagnosed and dilatation was done. She was referred back to her local physician where dilatation was to be continued.

Hospital

5-7-31 - Admitted to University Hospitals. Physical examination reveals a poorly nourished, white female showing evidence of much weight loss. Bilateral anterior cervical adenopathy. Blood pressure 96/54. The chest is emphysematous. Rectal examination - negative. Laboratory - Urine - negative. Blood - Hb. 83%, wbc's 9,000, Pmn 78%, L 20, M 2%. Progress: 3000 cc. saline given by hypodermoclysis. Pulse 92. Temperature normal.

5-8-31 - Patient has no complaints. Put on liquid diet. 3000 cc. normal saline given subcutaneously. Urine - negative. Pulse 90. Temperature normal.

5-9-31 - 3000 cc. of 5% glucose given by hypodermoclysis. Liquid high caloric diet.

5-10-31 - Patient is comfortable. Hypodermoclysis of 2000 cc. of 5% glucose.

)00 cc. of normal saline with 5% glucose
)r vein.

)eration
5-11-31 - Sodium barbitol gr. v.)eration began at 10:35 A.M. and ended 1:47 A.M. Spinal anesthesia was given. ncision - left epigastrium. When the)domen was opened, small, hard nodules)re felt in the upper portion along the)sophagus. These undoubtedly represent spread of a lesion from the lower)rtion of the esophagus down into the)eritoneal cavity. The culdesac and liver,)wever, were free. There were adhesions n the region of the appendix representing n old inflammatory process. It is very bvious, however, that a secondary radical rocedure is out of the question. The tomach itself was very small and con- racted. A regular Janeway gastrostomy, herefore, could not be contemplated with he stomach so small. By placing two lamps, one above and one below the tomach and inflating the stomach with air, t assumed ordinary proportions. A small lamp was then placed at the middle por- ion at the upper and lesser curvature as ncision was made designing a flap. After he distension of the stomach in this anner, the stomach was dilated enough so hat a Janeway type of gastrostomy was asily performed. The stomach was then losed transversely by Connell sutures nd this suture was brought over the flap ringing the serous surfaces in contact)ver a catheter which was placed in the stomach. Two rows of sutures. A tube as brought out through a stab-wound to the eft of the incision. Omentum was freely)laced above it. Closure of the wound in ayers, using chronic catgut in the peri-)oneum and fascia, double interrupted sutures and linen in the skin. The only)oaptation made over the stabwound was inen sutures in the skin. The flap was)f quite normal color at the cessation of he operative procedure. A #14 catheter as left in the tube. Postoperatively, 2000 cc. of intravenous glucose given. yperventilated 5 minutes, four times aily.

5-12-31 - 1000 cc. 10% glucose given intravenously. 1000 cc. given, added. ater on 2000 cc. of 10% glucose per vein. ulse is of good quality, 110. Temperature 9.4.

Pain
5-15-31 - Hyperventilated, three times daily. Dressings changed. Dichloramin - T pack. Begins to complain of pain in the abdomen. Has severe diarrhea this A.M. Patient has a chill, lasting 3/4 of an hour. Temperature afterward is 101.2. 1000 cc. of 10% glucose, intravenously. Pulse 126. Temperature 101.2.

Exitus
5-16-31 - Patient does not respond well. Respirations are shallow. 3000 cc. 5% glucose given intravenously. Very short of breath. 1:30 P.M. - condition poor. Hands cold and cyanotic. Radial pulse is imperceptible. Breathing is slow and labored. 1:45 P.M. - caffeine sodium benzoate gr. 7-1/2. 2:45 P.M. - patient expired.

Autopsy
The body is that of a fairly well - developed and poorly nourished, white female, measuring 165 cm. in length and weighing approximately 140 lbs. Rigor is slight. Hypostasis is purplish and posterior. There is no edema or jaundice but slight cyanosis of the finger-tips. The pupils measure 4 mm. each and are equal. There is a recent, left rectus incision measuring 17 cm. in length, containing a gastrostomy tube. There is some flawing of the wound about 3 cm. in mid-portion. There are agnio- matous areas over both hands and fore- arms. There is a pigmented area about 15 cm. over the right lower leg.

Peritoneal Cavity. There are adhe- sions of the omentum, as well as the coils of intestines, to the abdominal wound. Also in this region, the peri- toneum is very much injected and there is a localized collection of pus at this point. The Appendix is subcecal and free.

The Pleural Cavities contain no fluid. There is a moderate amount of anthracosis present in the lungs. The Pericardial Sac contains a minimal amount of fluid.

The Heart weighs 350 grams. There are some hyaline plaques present on the anterior aspect of the left ventricle. The chambers are normal. The valve edges are free and normal. The Root of the Aorta shows a moderate amount of sclerosis. The coronaries show some sclerosis but no interference with their

lumina.

The Lungs weigh 300 grams each. There is a moderate amount of congestion at both bases.

The Spleen weighs 125 grams. The capsule is grayish and wrinkled. The pulp is very red and soft.

The Liver weighs 1475 grams. It is carefully sectioned to see whether there is any evidence of metastasis to any of its portions but none is found. However, it shows a slight amount of cloudy swelling.

The Gall-bladder and ducts are normal.

The Gastro-Intestinal Tract is normal in its entirety except for the lesion around the gastrostomy opening in the stomach which shows adhesions of the omentum and evidence of local peritonitis at this point, as previously described.

The stomach is next examined and it is found that in the lower third of the esophagus there is a circular ulcerated carcinoma, extending up the esophagus about 6 cm. in length, and ending quite abruptly at the cardiac orifice of the stomach. However , there is a small node on the lesser curvature, somewhat lower than this, that is hard and definitely carcinomatous. The esophagus is quite freely movable and seems that the infiltration had not extended very far out into the surrounding structures; but at one point, it is evidence that there is a little attachment to its surrounding structures and at this point there is a perforating type of ulceration which evidently would have progressed to perforation. As this is taken out, it is found to be torn and perforated.

The Pancreas weighs 150 grams and is normal.

The Adrenals are normal.

The Kidneys (each) weigh 150 grams. The capsules strip easily, revealing smooth surfaces. On section, no evidence of infection can be found grossly. The pelves and ureters are normal.

The Bladder is normal.

The Genital Organs are senile.

The organs of the Head and Neck are not examined.

Diagnoses:

1. Carcinoma of lower end of esophagus (ulcerative).
2. Recent gastrostomy.
3. Localized peritonitis.
4. Recent abdominal incision.
5. Marked emaciation.
6. Pigmentation over forearms.
7. Cloudy swelling of liver and kidneys.
8. Acute splenitis.
9. Moderate anthracosis of lungs.

Note: Female, age 61, longer history (10 months), with fairly local lesion in lower third.

III. ANALYSIS OF NEW OUT-PATIENTS FOR THE MONTH OF OCTOBER (1931)

By Macnider Wetherby, M.D.

An analytical study has been made of all new patients entering the Out-Patient Department of the University Hospital for the month of October (1931). The charts of the patients have been examined from four to six weeks after the first visit as it was believed that conditions bringing patients here for care should be determined before that period of time in nearly every case.

During the month, there were 649 new charts issued. Of that number, eight charts contain no record of any examination, leaving a total of 641 new patients examined. The explanations in the eight remaining charts were as follows: One patient refused a general examination, in one case a patient was issued two new charts, and six patients did not wait for examination.

All patients under fifteen years of age are routinely sent to the Pediatric Clinic, and all patients over fifteen years of age are routinely sent to the Admission Department. In the group of 641 patients examined, there were 129 under fifteen years of age and 512 over fifteen years of age. Of the 512 individuals over fifteen years of age, 489 had a general examination in the Admission Department. In a few instances, patients were admitted directly to special clinics without routine examinations. Most of these exceptions were made with discharged hospital patients coming in for dressings and removal of casts. A few patients were admitted direct to special clinics at the request of the head of that clinic.

An estimate has been made of the average number of clinics attended by each individual. In some instances, patients were referred to clinics which

were not visited. These figures, however, were based on clinics actually attended. In determining this, previous hospital patients coming in for some special service have been excluded as they are in most instances not coming in for diagnostic study. Of a total of 489 patients examined for study in the Admitting Clinic, there was an average of 2.23 different clinics attended per patient. This average as previously stated is of the clinics actually attended and includes some patients who were sent into the hospital for further studies, as well as a number of hospital employees for routine examination in the Admitting Clinic only, and also those individuals who did not return after the first visit. In the Pediatric Clinic, there were 125 patients examined with an average attendance of 1.90 clinics per patient. The reason for fewer clinics per patient in Pediatrics is probably due to the different problems presented as well as to a tendency of pediatricians to care for minor special conditions in their own clinic.

Many patients examined in the Dispensary were referred to the University Hospital for care. Of 489 adult patients examined, 133 individuals, or 27 per cent, were advised to have some hospital care. Thirty-four were obstetrical patients, seven were for tonsillectomy, and the remaining eighty-eight had chiefly surgical and medical conditions. Of this number, 129 were advised to enter the University Hospital and four were sent to the Minneapolis General Hospital. It seems obvious that students in the Admission Department are finding a large percentage of patients with organic disease, as many other patients with organic disease are handled as out-patients. In the Pediatric section, in the examination of 125 patients, twenty-three (18 per cent) were advised hospitalization. Of this number, fifteen were for tonsillectomy, and eight for the various Pediatric services.

An attempt has been made to classify patients as to satisfaction of management. This is chiefly an attempt to show whether or not the staff have had a satisfactory opportunity to study and manage the patient rather than whether or not the patient has obtained relief or cure. This may be classified as follows:

	Number of Patients	Per Cent
Entirely satisfactory	690	93.2
Partially satisfactory	26	4.1
Unsatisfactory	17	2.6

The partially satisfactory cases were those when patients failed to return for reports or did not complete all study as advised. This was true with certain out of town patients who were unable to remain for x-ray studies and special tests. Some cases were included in this class in which management may have been satisfactory but in which the records were incomplete. Unsatisfactory patients included those who did not wait for examination or did not report for essential studies requested.

A study has been made of the residence of the new patients. It was found that 57 per cent resided in Minneapolis, 9 per cent in St. Paul, and 35 per cent outside of the Twin Cities.

A survey has been made of the x-ray examinations done in this series of patients. Among the 489 patients examined in the Admission Clinic, there were a total of 127 x-ray requests:

	Positive	Negative	Percent Positive
Gastrointestinal tract	12	23	31.4
Gall bladder	8	16	33.3
Colon	1	2	33.3
Nasal simuses	7	4	63.6
Stereo of chest	13	8	61.9
Extremities	7	3	70.0
Lumbosacroiliac	1	2	33.0
Skull	0	3	00.0
Spine	6	2	75.0
K.U.B.	2	5	28.5
Jaw	0	1	00.0
Heart	1	0	100.0
All cases	58	69	45.6

Of the 125 patients under fifteen years of age, there were twelve x-rays taken, three being positive and nine negative.

Every effort should be made to complete a patient's study in the shortest time possible. This is particularly urgent with out-of-town patients. The x-ray department, which does splendid work, often holds up our reports, and

are unwilling to give us phoned reports. I believe that privilege should be allowed us if possible.

I have estimated that the above patients represented about 15 per cent of the total out-patient visits for the month of October. Undoubtedly, they represent a relatively higher percentage of the active diagnostic work being done.

The records of the Out-Patient Department are subject to certain criticisms. Certain clinics are the chief offenders in failing to record findings, impressions, and disposal of the patient. It seems important that we be more specific in our notes as to what we believe wrong with the patient and what we are doing or advise doing about it. The Dermatology Clinic is to be especially commended in that they record definite impressions and the treatment advised or given on nearly every chart. The Tumor Clinic in the past has failed to make any notations as they keep separate records, but are now beginning to record impressions and advice given. I feel strongly that no matter what special records may be kept there must be one composite record of all the findings and treatments outlined. In spite of certain difficulties, definite diagnosis can be made from the records in the majority of cases.

The Out-Patient Department is of value as an aid in selecting the proper cases for hospitalization. It is also exceedingly important, in view of our waiting list, to complete all possible preliminary diagnostic studies in the Out-Patient Department. Such procedure will definitely cut down the average necessary number of hospital days per patient and allow a greater turnover per year in the hospital proper. It is impossible to do complete preliminary study on all patients applying for hospital care as some are too ill and need immediate hospitalization; while others are out of town patients without funds or friends in Minneapolis with whom they can stay. There are, however, a surprisingly high percentage of patients who can arrange to stay in Minneapolis for out-patient study, and we are advising this procedure for many individuals with application blanks on file. We have found that hospital care is unnecessary for many of the individuals examined, and in those where hospital care is indicated the preliminary study is complete before entry and means a definite saving in hospital days.

IV. ABSTRACT:

CARCINOMA OF OESOPHAGUS

Abstr. Randall

1. References

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2. General Statement

Carcinoma of the oesophagus is essentially a disease of elderly males, of a high grade of malignancy with an average duration of life of less than one year. The treatment is palliative (at the present time) but starvation at 70 is just as uncomfortable as starvation at 20 (Abel).

3. Frequency

Carcinoma of the oesophagus makes up approximately 5% of all malignant tumors. Of 5,900 autopsies at the Philadelphia General Hospital, there were 812 cases of malignancy; of these 41 or 5% were carcinoma of the oesophagus. (Clayton). 4% of all deaths due to

malignant disease in England are oesophageal cancer. (1600 deaths annually). (Souttar). At the Mayo Clinic, it constitutes from 5 to 12% of all malignancies. (Moersch). The last figure is higher than usually given. In 1923 (Vinson) stated that the disease is much more common than usually appreciated. This may be due to the fact that many patients go to the Mayo Clinic with obscure illnesses.

4. Sex

More common in males than females. Usual ratio, 4 or 5 to 1., e.g., 39 of 41 cases (85%) were in men. (Clayton). 71 of 87 patients (81%). (Stewart). Males 75%. (Kraus). Ratio of males to females, 7 to 1. (Moersch). (84%) Males 77% (McCullagh).

5. Age

Average in males (62), females (67); oldest 81, youngest 44. Not including sarcoma in woman 28 years of age. (Tasche). Average age (60). (Clayton). Chiefly about the (50th) year; extremes 2 females (19 and 90). (Ewing). 96% of cases occur after (45); 88% after (50), maximum incidence between (65 and 70). In women incidence between 40 and 75 is about constant; only about 8% occur before 40. (Souttar). Average age 58, youngest 28, oldest 80. (Moersch). Males, agerage (59); females average (56); youngest males 39. (McCullagh).

6. Location

Four normal constrictions in oesophagus. (1) Introitus. (2) Passage through diaphragm. (3) Where arch of aorta passes over it. (4) Where oesophagus passes behind origin of left bronchus. (Closely related to usual sites of origin of carcinoma), e.g., (41) cases--upper third (4), middle third (19), middle and lower third (4), lower third (14). (Clayton). There is also an apparent sex difference. In women, more are in upper end; in men, it occurs at lower level. The ratio in males between the upper, middle, and lower thirds is 1: 2: 3. (Souttar). In men, the lesion is more common in the middle third; in women, in the upper third. (Vinson). Males, upper third 13%, middle 44%, lower 46%; females, upper third 44%, middle 27%, lower 27%. (McCullagh). 77 cases, 15 in upper third, 30 in middle, and 32 in lower. (Farrell). Upper third of oesophagus 19%, lower 55%, middle 26%, upper and lower combined 1%. (Stewart). No sex distinction is made although the fact that he had 71% males would indicate that the larger number located in lower portion. Impression: Carcinoma of oesophagus shows definite sex predilection as far as location is concerned. Females usually upper portion, males usually lower portion. It has been suggested that the increased frequency in upper portion in women is due to greater frequency of nervous spasm of pharynx in women. (Sauttar). No theory is advanced for the location of the tumor in the lower portion in males.

7. Types

(1) Flat infiltrating ulcers. (2) Bulky polypoid mass. (3) Diffuse infiltration. (The latter may be very confusing, i.e., stiff oesophagus). (1) Ulcerated form usually encircles tube causing constriction and invading surrounding structures. The larynx, gastric wall, adjacent lymph nodes, trachea, bronchi, lungs, aorta, and mediastinum may be affected. Hemorrhage may result from erosion of pulmonary vessels, carotid or others. Tumors in neck may be bulky and there may be invasion of mediastinum, lungs, pericardium, and pleurae with secondary ulcerations lower in the oesophagus due to permeation of the lymphatics. Pressure on recurrent laryngeal nerve may suggest aneurism, and the ulcer in the oesophagus may be overlooked. (18 of 236 cases reported by Sakota showed nerve involvement). (2) The polypoid tumors are usually adenocarcinomata and may be circumscribed within the wall or extend externally. (3) Diffuse infiltration of most of the esophagus. Also involvement in portion of lesser curvature of stomach. May or may not be ulcerated. (Linitis plastica?) (Ewing) Most tumors are necrotic and bleed easily. May be a cauliflower growth, ulceration, or scirrhous change. (Abel).

8. Degree of malignancy. As a result of observations at autopsy it is found that the disease is usually limited to oesophagus and is of a low order of malignancy. (Abel). Other views are to contrary and it is believed that death takes place so rapidly after the disease

is discovered that it kills before extension can take place even though the disease itself is not so malignant, or the disease is highly malignant. (Clayton) graded tumors after Broder's method. Grade 1, 3 cases. Grade 2, 15 cases. Grade 3, 12 cases. Grade 4, 9 cases. Average duration of life after onset: Grade 1, 16 months. Grade 2, 8 months. Grade 3, 5 months. Grade 4, 3-1/2 months. (Note correlation) In this series, 1 was adenocarcinoma, 1 basal, and 39 squamous). (Broders) believes 90% are in grade 3 and 4 but has never seen grade 1.

9. Microscopic for Squamous type (acanthoma).

Pearl's hornification and prickle cells may be absent and tumor assume undifferentiated forms. Adenocarcinoma may be similar to same type of tumor in stomach. Mucus production may be abundant in either adenocarcinoma (see our cases) or acanthoma. Structure varies in different parts of same tumor. (Ewing makes special point of this and thinks it may explain some of so-called carcinoma-sarcomas of oesophagus). Embryonal variety may metastasize and form large tumors in liver. Early stages of oesophageal carcinoma are rarely encountered. Janeway examined one which was 1.0 cm. in diameter but such observations are very rare. (Souttar believes squamous types are commonest with many cell nests and large amount of keratinization and less common is medullary adenocarcinoma.

10. Pre-cancerous lesions:

Alcohol, irritating hot foods, tobacco, leukoplakia, and tuberculous ulcers have been mentioned. Diverticulae are also a possibility as tumors have been found on the edge or in depths. Anomalies of structure are also a predisposing factor. A. There are interruptions in the squamous lining of the mucous membranes by islands of mucous glands. The most important of these occur from the level of the cricoid cartilage to the fifth tracheal ring. They also appear in the cardiac end of the oesophagus and doubtlessly give rise to the mucoid or adenoid varieties of the tumors. These sudden transitions of epithelial types offer a predisposing factor for epithelioma. (Probably embryonal oesophageal epithelium) and not misplaced gastric mucosa. The general incidence of tumors, however, does not bear out as this relationship. Kraus found 158 cases in the upper third and 699 in the middle and lower thirds.

B. Canals lined by cuboid or squamous epithelium in submucosa.

C. Deeper canals perforating the muscular coat.

D. Complete tracheo-oesophageal fistula.

Many of these canals open up on the mucous surface of the oesophagus and always on the anterior surface in the midline. (Ewing). (e) (Schaer) studied 237 oesophagi at autopsy; 67% showed leukoplakial thickening. (More common than in the mouth). More frequent in men than in women. Author does not think it very important, not so important as similar lesion in the mouth. High glycogen content in epithelial cells in leukoplakial patches is of interest. 66% showed chronic oesophagitis in varying grades but without epithelial proliferation. 17 traction diverticulae were found in 12 cases. More frequent in men than in women. Atypical epithelial proliferation was present in these to suggest possible ultimate development of carcinoma. Author believes diverticulae play important role. Note: This peculiar appearance of the oesophagus is a rather common postmortem finding but has not been very well studied in post. Carcinoma of the oesophagus is more common than carcinoma of the stomach in China. A frequent statement made by Public Health lecturers is that this is due to the eating of hot foods, as the man is served first.

11. Metastasis. (Ewing)

Early due to abundance of blood and lymphatic supply and to movement of organ. Once it has gone through fibrous coat, extension through lymph vessels occurs with unusual rapidity, forming secondary tumors in nect, near thyroid, in pleurae, lungs, and liver. Blood vessels are penetrated in rare instances. May metastasize to nearly any organ. Note: One metastasis to long bone is reported (head of right tibia). (Mandillon). (Souttar) states that they may remain localized for long periods of time, forming deep, excoriated ulcers. Usually single but may be multiple indicating extensive

lymphatic permeation. Extensive involvement of adjacent structures with perforation may occur. Bronchopneumonia or gangrene of lung is common terminal factor. Primary growth destroys individual before secondary deposits can occur. Carcinoma of oesophagus may exist in advanced stage without single local symptom. Author believes that disease is of high malignancy (more support) and the symptoms appear so late that radical operation, except in unique cases, is a pathological impossibility. (Clayton) states that because of the close proximity of trachea bronchi and lymph nodes to middle third of oesophagus they are readily involved by growth. He had 19 cases in middle third and 4 in the upper third. One of these in the upper third had no metastasis; 3 widespread (2 with perforation), only 1 metastasized below diaphragm, (liver). Middle third 19 cases, no metastasis in 6, remaining 13 went below diaphragm (8 metastasized widely). Middle and lower third metastasized widely (extensive growth). Lower third 12 cases, 3 did not metastasize, 9 metastasized below diaphragm, 2 of these had no metastasis above diaphragm. The lower third tumors gave rise to the highest numbers of extension below the diaphragm (extension). This is because of lymph drainage. (Stewart) found as follows: Lesser peritoneal cavity 2%, celiac lymph nodes 3%, trachea 2%, left supraclavicular nodes 8%, left cervical lymph nodes 13%, right cervical lymph nodes 9%, local infiltration 9%, left lung 14 %, right lung 9%, pleurae 2%, ribs 2%, mediastinum 11%, pericardium 2%, left axillary lymph glands 2%, right axillary glands 5%, parietal peritoneum 3%, liver 6%, and omentum 2%. (87 cases). (Vinson) states that demonstrable metastasis is infrequent (clinically?) but occurs more often with lesions of the introitus and therefore is proportionately more common in women. (Abel) states that the tumors spread by direct extension through lymph stream. At first the enlarged glands do not contain carcinomatous deposits but are hyperplastic. (Helsley) reported 70 cases, in 64% the tumor was confined to the oesophagus and there were no secondary deposits in the nodes or other organs. Lymph nodes, alone, involved in 6%, while in 30% more distant nodes and viscera were affected. Believes that for a considerable time, the disease remains localized and that there is ample time for diagnosis and treatment before metastasis occurs. Irrespective of the duration of the disease, the possibility of metastatic formation without evidence of the same should not contra-indicate attempt at operation. Most authors agree that metastases may occur early. Freedom from metastasis is reported in from 46% to 72% of cases. It seems that from autopsies, 1 in 4 of these cases is operable by radical method. As these cases are seen several months before death, 1 in 3 or 1 in 2 are operable. (Abel).

12. Symptomatology.

a. Dysphagia - usually first and most prominent symptom. Due to partial obstruction. (Interference with motility by infiltration of tumor). (Moersch). Usually progressive. Onset slow or abrupt. White froth in morning is diagnostic. (Souttar). In 29 cases, first symptom in 22, late in 7. Only symptom for a long time in 15. (Clayton). Found in 79 out of 82 cases. (McCullagh).
Note: Not much emphasis on type of food and obstruction. Old statements that liquid obstruction (spasm) and solids (tumor) may have to be revamped.

b. Loss of weight and weakness - occurred early and constant. (Clayton). Very few patients fail to show it.

c. Discomfort - sense of weight or oppression (substernal) due to dilation above obstruction. Pain conspicuous by absence (maybe colicky), usually associated with deglutition. Frequently state that they are using more liquids to wash food down. (Abel).

d. Other pains. Root pains (intercostal), pleural pain tension, etc.

e. Hoarseness and aphonia - involvement of recurrent laryngeal nerve. Also, paroxysms of dyspnea from same source, e.g. (Souttar) Cough 25%, Hemoptysis 25%, Hoarseness 8%.

f. Regurgitation. 66%. Immediate 45%. Deferred 23%. (Clayton). Vomiting 7% uncommon except when stomach is involved, (McCullagh). Tenacious mucous secretion with paryxysms of coughing not uncommon.
Note: Chief symptoms are dysphagia, weight loss, weakness, substernal discomfort, hoarseness, aphonia, paroxysms of dyspnea and coughing, and hemoptysis.

13. Diagnosis. Laryngoscopic, fluoroscopic, oesophagoscopic, and x-ray and biopsy. Fluoroscopy to rule out aneurysm. Immobile or stiff wall may be confusing in oesophagoscopy. Gastroscopy to rule out involvement of stomach.

(Siesinger) thinks diagnosis should be made before narrowing of lumen and spread occurs. Earlier symptoms than frank dysphagia are unusual sensations when swallowing. Sense of substernal uneasiness or slight discomfort in back may be early. Obstructive symptoms are late. All men past forty with difficulty in deglutition and no previous history of dyspepsia should be considered as possible malignancy of oesophagus.

X-rays of aid but not infallible. (Moersch). Usually show irregular filling defect with evidence of obstruction. Lesions at introitus are difficult to visualize and those at cardia are difficult to differentiate from spasm? Plummer's sound is aid in diagnosis. Biopsy sometimes difficult. McCullagh: x-rays positive in (82%), physical and history alone (71%). Oesophagoscopy in 40 of 82 cases, in 15% it failed to make diagnosis. Roentgen examination is important. (Farrell). Should be done wherever there is slightest difficulty in swallowing. 77 cases, filling defect (all). 76, was irregular and in only 1 smooth. Narrowing at site of growth (constant). Slight dilation of proximal portion in 73 of 77, absent in 4. No relationship between site of growth and absence of dilation. Increased peristalsis not a feature. Metastasis and lower lobe pulmonary infection (occasionally). Erosion of trachea or bronchus with fistula tract rare. Must be differentiated from cicatricial stenosis, stenosis from external pressure, varix, diverticulum, oesophagitis, foreign body, extension of gastric malignancy, cardio-spasm, lesions of central nervous system (bulbar palsy), lesions of nerve controlling muscles of deglutition, globus hystericus and hysteria.

14. Duration. (McCullagh) no cures, longest survival 3-1/2 years, average duration of life in males 9.9 months, females 12.5. (Clayton): shortest 2-3 weeks, longest - 15, 17, 22, and 24 months; of 41 cases, 3 had no symptoms referable to oesophagus; in 1 lesion very small, in 1 middle third involved (3 cm.) wide and metastasized; in 1 lesion flat in lower third. In those of shortest duration, lesions were flat--i.e., no obstruction. In those with longest not as extensive locally. Average about 7 months. (Souttar) When patient comes to autopsy, changes are about same as when first seen by physician. Average after onset of symptoms until death, 4.7 months. (Moersch) 228 cases, all dead. Average was 6 months longer in adenocarcinoma than squamous. No relationship between longevity and location of tumor. Average from onset of symptoms to death is 1 year. (Vinson). Average duration before consulting surgeon is 6 to 8 months. 70% are operable when first seen by medical practitioners, from 30 to 50% when seen by surgeons. (Abel).

15. Treatment - Diathermy, radium, intubation, resection, gastrostomy. (Abel) disease is distinctly surgical and efforts should be made to remove tumor. He is firmly convinced that most of them are local when first seen (42 to 70%). Also thinks it is relatively benign and should be diagnosed early. No other treatment is of value except removal. Dangers are shock, hemorrhage, and infection. Some can be avoided by preoperative preparation and good technique.

(Moersch) favors Plummer dilatation with Bougie. Gives most comfort and least amount of shock. Gastrostomy only when absolutely necessary. Mortality (untreated) 100%. (Vinson): Survery offers little (in curative or palliative way). Radium and deep x-ray are valueless. Forcible dilation of malignant stricture gives greater relief than any other form of treatment. (Souttar) favors intubation. Immediate results satisfactory. Better than gastrostomy (affords longer expectation). Note: Duration of life after intubation average 5.3 months. Most patients swallow satisfactorily nearly to end. Average gastrostomy 3.6 months. "Gastrostomy is invention of the devil." (Clayton) gastrostomy should be done but seems to have very little effect in prolonging life. Radium of no value. (Clayton). (McCullagh) -- 57 patients treated, x-rays 14, radium 16, gastrostomy 17, oesophageal dilation 7, oesophagectomy 3. 2 of these survived less than one year, the other not traced.

(Cleveland Clinic).

(Diathermy)- Wright. Prolongs life. Chloroform anesthesia, special electrode used through oesophagoscope. (below upward). Wait one month. Results usually complete (14 days). Adapted to annular cases (very few minutes with little shock). Not in advanced cachexia until after gastrostomy. Feels that passageway can be kept open this way until death occurs from extension of disease.

(Hegar) - that most patients presenting themselves with this tumor are poor risks. Results of operation in small group has not been satisfactory due to technical difficulty. (Torek) lists long report of possible reasons for failure. Percentage reduction of failures 92.3 to 91.2 (?) Many operations should not have gone farther than exploratory. Longest living case is one of his own. Died 13 years later at 80 without recurrence. No more than 5 cases are reported in literature as cured. Operations on experimental animals show better results. Explore first and form opinion at that time.

(McKenzie) used diathermy. Thinks it more dangerous than radium and probably not as effective. Usual cause of death is tumor itself (Cachexia). In 19 cases (Souttar) perforated bronchus 3, perforated traches 3, perforated aorta 1, hemorrhage from growth 1, subphrenic abscess and bronchopneumonia 1, metastasis to brain 1, exhaustion and bronchopneumonia 4.

Impressions:

1. 5% of all malignant tumors are in oesophagus.
2. More common in males (75 - 81 - 84 - 95%).
3. 96% occur after 45, 88% after 50. Maximum incidence 65 to 70.
4. In women, tumors more often found in the upper third, in men the lower third.
5. The chief types are flat, infiltrating ulcers -- bulky polypoid masses, and diffuse infiltrations.
6. Degree of malignancy (low or high) according to various authors. Broder's finds 90% in grade III and IV.
7. Microscopic types are acanthoma (squamous cell), basal carcinoma, adenocarcinoma, and mixed embryonic types.
8. The following precancerous lesions have been listed: Alcohol, irritating hot foods, tobacco, leukoplakia, tuberculous ulcers, diverticulae, anatomical rests, perforating canals (with sudden epithelial transitions), fistulae, etc.
9. Metastasis is early and extensive according to some and late or absent according to others. Figures vary so much that the truth probably lies some place between. Extend chiefly by lymph stream and direct.
10. Chief symptom is dysphagia. When present should be investigated. Others are: loss of weight, weakness, substernal pressure, colicky pain, hoarseness, regurgitation, occasional vomiting.
11. Diagnosis by history, physical findings, oesophagoscopy, biopsy, x-ray.
12. Onset abrupt or slow.
13. Average duration of life usually less than one year. Seems to be longer in females.
14. Treatment is x-ray, radium, diathermy, intubation, gastrostomy and attempted removal.
15. Some surgeons believe most cases are favorable when first seen. 5 cases reported as cured in literature (many more successfully removed). Longest 13-1/2 years.
16. Intubation is best form of palliative treatment.

Material: Cases: Abel (70). Scherer 230 oesophagi, no tumors. Moersch (228). Tasche, (24) University Hospitals (part of Stewart's series). Souttar (118). Clayton (41) McCullagh (82). Farrell (77). Ewing (857). Moersch (236). Broder's (226). Stewart - 10-year series (87) as follows: 55 from University Hospitals and 32 from General Hospital.

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THANKSGIVING NEXT WEEK