

Staff Meeting Bulletin
Hospitals of the » » »
University of Minnesota

Carcinoma
of Esophagus

STAFF MEETING BULLETIN
HOSPITALS OF THE . . .
UNIVERSITY OF MINNESOTA

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during the school year, October to May, inclusive.

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William A. O'Brien

I. LAST WEEK

Date: January 7, 1938
Place: Recreation Room
 Nurses' Hall
Time: 12:15 to 1:20 P.M.
Program: Movie: "The Old Mill"

Autopsies
 Robert Hebbel
 F. W. Hoffbauer
 Harold Peterson
 William Hollinshead
 M. J. Thomas

Discussion: Irvine McQuarrie
 F. F. Dwan
 Cecil J. Watson
 Wesley Spink
 R. W. Koucky
 O. H. Wangenstein
 Ralph R. Sullivan
 Robert Hebbel

Present: 113

Gertrude Gunn,
 Record Librarian

II. MOVIE

Title: "The Romance of Radium"
 A Pete Smith Short

Released by: M-G-M.

III. GOSSIP

Former Pathologist
 Fellow Arthur A. Nelson writes from
 Washington, D. C. to say that he is now
 located at the National Institute of
 Health, E and 25th Streets, N. W. He
 is enthusiastic about his new place -
 ..Former Surgeon Melville H. Manson is
 now located with The Commonwealth Fund,
 41 East 57th Street, New York, in the
 Division of Rural Hospitals. After

leaving Minnesota, he did hospital
 inspections for the American College
 of Surgeons. He must have been very
 good for every place one goes, his
 work is praised. His friends are
 invited to look him up when in New York,
 and he will take care of their needs.
 "Doc" is a Worthington, Minnesota boy
 who has made good in the big city -
 Filing Clerk, Irving Swalwell, dedi-
 cates the following poem to Record
 Librarian, Gertrude Gunn:

"The charts lay fil-ed row by row
 Except those on the "come and go";
 There they lay in sweet repose
 Hiding tales of ills and woes.

"All night they sleep until at dawn
 They're wakened by the chart-boy's
 yawn;
 Then they're pulled, and in their
 place
 Lies a card for Rod to chase.

"And what a time he has to find
 A chart that's gone from sight or
 mind;
 There he goes from door to door
 Hunting the chart that is no more.

"On Gilman's desk he's apt to trace
 This chart that has no resting place.
 In Creevy's den, or doctor's box
 He may find this frisky fox.

"Or maybe now his 'social' friend
 Is trying hard the ails to mend;
 But run as hard and fast it might,
 Rodney brings it out to sight.

"And Danny fixes up their ills
 Pasting in their paper pills;
 While Alice helps Miss Malone
 In cheering charts just coming home.

"Daily births in charting land
 Are tended by Irv's guiding hand;
 And everyone keeps on the run
 Threatened by a 'dreadful' Gunn."

The correct pronunciation of "skiing"
 is "sheeing," which may or may not be
 significant - Hannah Daniels, wife of
 Lewis Daniels, is taking her vacation
 in Sun Valley - (Continued on page 133

IV. CARCINOMA OF ESOPHAGUS

N. Logan Leven
and Warner F. Bowers.

"The fact that the disease is invariably fatal is to some extent discounted by the advanced age at which it appears. But starvation is just as miserable an end at 70 as at 20." (Souttar). The subject of carcinoma of the esophagus still comprises a sorry chapter in medicine. In recent years the occasional successes by surgery have lent encouragement to this form of treatment. If any further advances are to be made in the management of these cases, it is essential that earlier diagnosis be made. When the diagnosis is obvious, the disease is already well advanced.

Incidence

4 to 5% of deaths due to carcinoma are cases of esophageal malignancy. (Souttar, Smith, Seiffert). 40 to 50% of all lesions in the esophagus are the result of malignant degeneration. (Guisez, Vinson).

Sex

Men are 4 to 6 times more frequently affected than women. In 1000 cases Vinson found 836 men and 162 women. This greater frequency in men has been ascribed to the fact that men consume more alcohol and tobacco and eat their meals more hastily than women.

Age

Carcinoma of the esophagus is rarely found under 40 years of age and is most frequent between the ages of 50 and 70 years. (70%)

Race

Vinson found the Jewish race particularly susceptible, the incidence being 3 times greater than in the general registration of patients at the Mayo Clinic.

Etiology

Amongst the etiological factors have been numbered the use of spiced foods, tobacco and alcohol (1/3 of cases). Development of carcinoma in cases of esophagitis and cicatricial affections of the esophagus have been pointed out.

Psychical causes, grief and emotion, have appeared to act frequently as predisposing factors, since the esophagus is very susceptible to spasm under these conditions. Guisez believes that the spasm leads to inflammatory stenosis, esophagitis and cancer.

A history of syphilis or a positive Wassermann is rare in these cases. Guisez and von Hacker consider leukoplakia as a precancerous lesion. That this is of less significance than supposed has been shown by Schaer who found leukoplakia in 60% of noncancerous cases at autopsy.

Anatomical Site

Most authors consider that the sites of election are the physiological narrowings and pathological constrictions because these points are subjected to more irritation by a bolus of food than is the rest of the esophagus. Souttar finds that in women the majority of cancers occur in the upper 1/3 of the esophagus, probably due to the fact that postcricoid cancer is more frequent in women. In men 80% occur at or below the bifurcation of the trachea.

Pathology

Most common is the squamous cell carcinoma of the esophagus (85 to 90%). Adenocarcinoma may be found at the cardiac end of the esophagus and usually represents an invasion from the stomach or arises from glandular structures of the esophagus.

In a study of tissue from 207 cases, Vinson and Broders graded the degree of malignancy as follows: Grade I, 0%;

Grade II, 7.73%; Grade III, 45.9%; Grade IV, 46.37%. They also found, in 42 necropsies, extension to other organs in 27 and in 14 of the last 15 cases examined, metastases were present.

It is evident that esophageal cancer is a tumor of high degree of malignancy.

Duration of the disease

Cancer of the esophagus is usually in an advanced stage before symptoms are noted. The usual survival after the onset of symptoms is 7 to 9 months.

Symptoms

Dysphagia

Dysphagia is the chief symptom and is present in 98% of the cases. It is the first symptom in 2/3 of the cases. Occasionally the onset may be abrupt as the result of reflex spasm and may disappear only to reappear. Usually dysphagia steadily increases, solids being first noted, then soft foods, and finally liquids are obstructed.

Where the first symptom was not dysphagia, the lesions were at the cardia and symptoms of gastric carcinoma were noted. As the growth extended from the stomach toward the cardia with reduction in the lumen of the esophageal opening, dysphagia occurred.

Pain

Acute pain is rare aside from perforation. Dull discomfort in the upper sternal region is quite common and may be accentuated by swallowing. Pain usually indicates extension to the mediastinum, vertebrae and intercostal nerves.

Hoarseness may be present due to involvement of the recurrent laryngeal nerves, the left nerve being most frequently involved.

Hiccough may be early and persistent from involvement of the phrenic nerve.

Regurgitation is a common finding and comes after the ingestion of food or

liquid and is not delayed as in cardio-spasm. Due to the gradual development and incomplete stenosis, there is little dilation of the esophagus above the growth and therefore the amount of regurgitation is not large. An excess of saliva may fill the esophagus and further impede swallowing so that on arising in the morning the patient is entirely unable to swallow until he has ejected a quantity of white froth after which he may be able to take food without much difficulty.

The expectoration may be blood streaked, have a gangrenous odor and the breath a marked foetor indicating ulceration of the lesion.

Weight loss

Progressive emaciation is invariable and due to starvation. If ulceration and sepsis are present, the patient may have anorexia and cachexia.

Complications

1. Mediastinal compression may occur with compression of the trachea, bronchi and nerve trunks.

2. Perforation may occur into the trachea and especially the left main bronchus which crosses the anterior aspect of the esophagus. In these cases a paroxysm of coughing occurs on the taking of liquids. Swallowing becomes impossible and bronchopneumonia and pulmonary gangrene develop.

3. Hemorrhage from the tumor itself as well as perforation and erosion of large vessels may occur. Some variation of symptoms occurs according to the site of the lesion. Thus, with the cervical type at the introitus and invading the pharynx, pain may be severe, dysphagia marked and rapid development of laryngeal phenomena occur with cough and hoarseness. If the lesion is in the cardiac portion, symptoms of gastric carcinoma may precede the dysphagia.

The appetite is often good until the end.

Examination

1. Physical examination often shows nothing except emaciation. Occasionally supra-clavicular nodes are present and a tumor mass palpable if the lesion is in the cervical portion of the esophagus.

2. Passage of sounds over a swallowed silk thread gives presumptive evidence of the diagnosis.

3. X-ray examination will give the correct diagnosis in 90 to 95% of the cases. A thick barium meal may cause complete obstruction in the cases. Therefore, a thin mixture should be used first.

4. Esophagosopic examination has chiefly been used to verify an established diagnosis. For early diagnosis, all patients with the subjective abnormality in swallowing should be promptly examined with the esophagoscope.

In a differential diagnosis, benign structure, cardiospasm, and stenosis from extrinsic pressure must be considered.

Treatment

The ideal treatment of carcinoma consists in its complete removal or in destruction of the growth; however, in most cases of carcinoma of the esophagus, treatment is only palliative.

Surgical removal (Graham)

The chief difficulties at present with the surgical treatment are not only that in the majority of cases the growth is in a relatively inaccessible portion of the body but also the fact that most patients present themselves late in the disease.

The cervical portion of the esophagus is the most accessible to the surgeon but is involved by carcinoma less than the other portions. Although operative removal of lesions of this region has been more successful than elsewhere, the results are not encouraging. In a series of 114 cases operated by Glück,

but 6 patients were alive and free from recurrence after 5 years.

The abdominal portion is the next most accessible portion of the esophagus. Exclusive of total gastrotomies for carcinoma of the cardia, there have been reported 5 operative successes by the abdominal route with apparently no survival beyond a year. Zaaiger and Hedbloom each have had an operative success after a combined abdominal and transpleural operation. Zaaiger's case died of recurrence while Hedbloom's case committed suicide.

In all operations for resection of the esophagus, the absence of any protective peritoneal covering to assist in healing of the anastomosis, creates a great hazard from infection and mediastinitis.

Methods for resection of the thoracic esophagus.

1. Retropleural - through a posterior mediastinotomy (Tilionthal).
2. Transpleural (Torek).
3. Esophagogastrostomy (Sauerbruch and others).
4. "Pull through" operation (Grey Turner).

The only really satisfactory result obtained by operative removal of the thoracic esophagus has been the case of Torek's by the transpleural method. A woman, age 67, survived the operation to live in good health until age 80 when death was due to pneumonia. There was no evidence of recurrence.

More recently, King has reported 2 cases, Garlock 2 cases and Brown and Stephens 1 case treated by the method with no recurrence as yet.

Radium

Marcus in 1927 stated that neither radium or roentgen rays had been able to produce a lasting cure of cancer of the esophagus. Guisez treated 470 cases

and had 30 that lived more than 18 months. Hill noted improvement and palliation in 14 of 20 cases. Vinson selecting 15 of his most favorable cases for treatment by radium found disappointing results.

Crump and Kasabach recently reported a cure by combined radium and roentgen ray therapy.

Better results might be expected by a combination of intraluminal application of radium together with implantation of radon about the periphery of the growth through a posterior mediastinotomy approach. Clemnison and Graham have each used this method with no successes.

Cautery

Moersch reported a case in which a carcinoma of the esophagus was destroyed by surgical diathermy with no evidence of recurrence after $2\frac{1}{2}$ years.

Gastrostomy

"Some suggest gastrostomy as a panacea whilst others again, amongst whom may usually be numbered the patient himself and his friends, regard it as an invention of the devil." (Souttar)

If gastrostomy is postponed until late in these cases, the mortality is considerably higher than if done early. In a series of 52 cases in which an early gastrostomy of the Janeway was done, Martin and Watson had an operative mortality of 5.80%.

The usual hospital mortality has been 20 to 40% with an average survival period not exceeding $3\frac{1}{2}$ months. (Gross, Souttar, Graham)

Intubation

By intubation, the mass can be canalized and in many cases swallowing may be quite comfortable until death. (Hill, Souttar, Myerson). An average survival period after intubation of 5.3 months was found by Souttar.

Dilatation

Of the methods of palliation, dilata-

tion of malignant structures of the esophagus by graduated sounds is the most satisfactory.

Vinson and Moersch find that the majority of these patients obtain marked relief from dysphagia with the passage of a No. 45 French olive and deglutition remains normal for 6 to 8 weeks. In a series of 502 dilatations in 6 years in cancer of the esophagus, they had but 3 fatalities due to splitting of the esophagus while 3 fatal spontaneous perforations occurred in a group of 75 cases in which dilatation was not performed in the same period. They had no case of fatal hemorrhage although hemorrhage is frequently a terminal event.

The reason for the good success of this method is the use of the swallowed twisted silk thread as a guide for instrumentation.

Dilatation should not be attempted in the presence of an esophagotracheal or bronchial fistula. Gastrostomy must be used in these cases.

A review of the cases of carcinoma of the esophagus at the University of Minnesota Hospitals 1926-1937:

	<u>Esophagus</u>	<u>Stomach with involvement of Esophagus</u>
Number of patients	58	18
Average age	61	56
Youngest patient	44	43
Oldest patient	81	76
Sex - Male	48	15
Female	10	3

The majority of these patients were farmers, housewives, laborers or unemployed. Since this corresponds to the occupations of the dispensary patients in general, it can have no clear relation to the etiology of the disease. A positive Wassermann was noted in but 2 cases.

In the cases involving only the esophagus, 22 of the lesions were in the upper 1/3, 12 in the middle 1/3 and 24 in the lower 1/3. There was

not a preponderance of high lesions in the women in this series. Of the cases in which biopsies were reported 22 were squamous cell carcinomas and 2 were adenocarcinomas.

The average duration of symptoms on admission to the clinic was 5.1 months for the esophageal cases and 8.3 months for the stomach cases with secondary esophageal involvement. The total duration of the disease was 7.5 months and 14.6 months respectively in these cases. Symptomatology in the esophageal cancer cases was characterized by dysphagia in nearly all (98%), weight loss in 3/4, some pain or discomfort in 1/2, regurgitation of mucus and food in 1/2, no loss of appetite on admission.

Complications

Esophagotracheal or bronchial fistula	6
Hemorrhage	3
Mediastinal pressure	3
Vocal cord paralysis	7

Treatment

Gastrostomy

Gastrostomies were done in 20 cases (34%) of cancer of the esophagus. The types of operation were: Janeway 9, Stamm 6 and Witzel 4. 4 cases (20%) died following the operation. An additional 4 cases died following surgery after a successful preliminary gastrostomy.

Most discouraging is the average duration of life of 35 days following the operation, with the longest survival of 3 months. It is evident that gastrostomy has not been done early in these cases.

Prior to 1932, 2/3 of the cases were treated by gastrostomy. Since 1932 in 31 cases but 4 gastrostomies have been done. This is due to the fact that these patients have been carried along comfortably by dilatations.

Surgical excision

Surgical excision of 2 lesions in

the upper 1/3 of the esophagus has been done using a cervical approach after preliminary gastrostomy. Both lesions had extended beyond the esophagus and death was due to mediastinitis.

Exploration of one case by trans-pleural approach showed the lesion to be inoperable.

Radium

In 10 cases treated by radium or x-ray the average duration of symptoms before treatment was 4.2 months with a total duration of the disease of 8.2 months compared to 6.5 months in cases not treated by irradiation or dilatation.

In some cases marked palliation has been noted. Lesions have apparently disappeared and biopsies taken have shown no evidence of cancer but the lesions have not been completely destroyed and invariably death has occurred with recurrence of cancer.

Some cases, due to the severity of the irradiation reaction are quite uncomfortable and have an increase in their dysphagia for a time.

In one case radon implantation about the periphery of a lesion of the middle 1/3 of the esophagus was carried out through a posterior mediastinotomy. Preliminary pneumothorax had been done on the left side and death following the operation seemed to be due to a mediastinal shift.

Dilatation

Dilatation of the esophagus to keep it patent by passing graduated sounds over a swallowed twisted silk thread was used in 29 (50%) of the cancer of the esophagus cases and in 14 (89%) of cases in which the stomach cancer had secondarily affected the esophagus.

In the esophagus cancer cases treated the average duration of symptoms before treatment was 4.3 months and the total duration of the disease of 8.1 months as compared with 6.5 months in the interested cases.

Dilatation may be carried out without hospitalization. These people often

gain weight and resume their work after dilatation but gradually fail and die. Often dilatation can be carried out in the dispensary until a week or two before death.

Two perforations occurred as the result of dilatation. In one case a localized mediastinal abscess was found at autopsy and in the other a peritonitis. A third death was due to mediastinitis following esophagoscopy.

Summary

1. Carcinoma of the esophagus includes 4 to 5 per cent of all carcinoma deaths.

2. 40 to 50 per cent of all lesions of the esophagus are due to carcinoma.

3. 90% are squamous cell carcinomas and highly malignant.

4. Men are 5 times more frequently affected than women.

5. Duration of the disease is usually 7 to 9 months.

6. Steadily increasing dysphagia in a man past 50 is indicative of cancer of the esophagus.

7. Pain indicates extension beyond the esophagus.

8. Weight loss is due to starvation since there is no loss of appetite in most cases.

9. Common complications are recurrent nerve involvement, perforation into trachea or bronchi and pneumonia.

10. Diagnosis is made on history, passage of sounds, x-ray and esophagoscopy.

11. Cures from surgery or irradiation are rare.

12. Best means of palliation is (1) dilatation by means of graduated sounds passed over a swallowed thread as a guide; (2) irradiation.

13. Gastrostomy is usually done late and with a high mortality.

14. Improvement in treatment of cases must come through earlier surgical intervention.

15. Therefore, attempt must be made to establish an early diagnosis in these cases before obvious symptoms occur.

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Bea and Ralph Rosen are the proud parents of a 2650 gram baby girl, born January 12 at 12:12 P.M. He was caught looking anxiously in the nursery probably wondering when he could start a program of setting up exercises - Smiling Olive "Ollie" Brendmon, on information at the Main Desk, wears 4B shoes. This is the lucky size as it is one often used for window displays. They must be the right size, or else she would never be able to smile as she does. - Admission Clerk Don Bowers is leaving for Wayne University, Detroit, to do graduate work and part time teaching. Don, who is the literary member of our force, is the former movie critic of the Minnesota Daily, the world's largest college newspaper - Former Internist Richard Johnson reports that he likes Detroit very well, and is enjoying his work at the Wayne University Medical School. Wayne's Dean is none other than Ray Allen, one of Minnesota's star pupils, who did graduate work in Anatomy under Dr. Clarence Jackson, took clinical training under Dr. Angus Cameron, Minot, N. D., followed by a fellowship at the Mayo Clinic, and later the directorship of the New York Post-graduate School - The following pun is contributed, the author is unknown: "Miss Gunn's dog ran away ; he was probably gun-shy" - Logan Leven, one of our co-authors today, is apparently completely recovered from the automobile accident in which he sustained a crushing injury of his pelvis, a year ago, and are we glad - Our other author, Warner F. Bowers, is an army post product. His last postoffice address before coming to Minnesota was in Nebraska. He shares this distinction with Chief Orthopedist Wallace Cole, who was also born in the army. During the Mexican disturbance Wally was a major in the line and transferred to the Medical Service when war was declared. His first assignment was with the British in an Orthopedic Unit. During the great war, his father was quartermaster of the port of New York. Now the secret is out, for many have wondered where these two gentlemen got their military bearing. Surgical Fellow Bowers' "asides" were undoubtedly cultivated during military formations -

Two younger generation ophthalmologists will teach at the Institute of Ophthalmology and Otolaryngology to be held at the Center for Continuation Study January 17 to 22. J. P. Macnie, son of J. S. Macnie, is coming from New York to deliver the address at the joint meeting with the Academy of Ophthalmology and Otolaryngology Friday, January 21, and Ed. Burch is giving the lecture in place of his father, who is in Egypt at the present time - Dr. Frank Burch announces that he is now in partnership with his son and will limit his work to consultations. He is very proud to make this announcement. Although doctors generally insist that they do not want their sons to become physicians, they seem sort of glad when they do - Head Pediatrician Irvine McQuarrie is part owner of a gold mine out West. Anyone who doubts this should see Dr. McQuarrie's selection of samples from the mine. His real nuggets are his three charming daughters who shine scholastically, and while we are on the subject of good students, Anatomist Andrew T. Rasmussen's representatives at the University are not so bad - More family news - Anatomist Edward A. Boyden's daughter will be one of our interns next year - But there is another side to this question - A few years ago one of the boys brought his father, who is a staff member at the Mayo Clinic, to freshman clinic to sort of give him an idea of how times have changed since he was in school. And the father was a good sport and came willingly. It was a chance to sort of help the dad. so he was called on to address the class while his bewildered son listened - Internist Reuben Johnson and Ophthalmologist and Otolaryngologist Malcolm Pfunder went sail-fishing in Florida during the Christmas holidays. Rube caught one, Malcolm caught one, and the Pfunder boy caught two, so they were able to fly a flock of pennants. Rube, who was certain that he would get seasick, did not eat or drink 'til the cool of the evening. The description of how this is done is rather complicated but it does not vary much from telling and telling - Congratulations, Crafts!