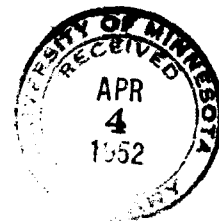


Bulletin of the



University of Minnesota Hospitals
and
Minnesota Medical Foundation



Malignant Lesions
of the Tonsil

BULLETIN OF THE
UNIVERSITY OF MINNESOTA HOSPITALS
and
MINNESOTA MEDICAL FOUNDATION

Volume XXIII

Friday, April 4, 1952

Number 22

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Published weekly during the school year, October to June, inclusive.

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The Bulletin is sent to members of the Minnesota Medical Foundation.
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I. MALIGNANT LESIONS OF THE TONSIL

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In a progressive Department of Radiation Therapy it is necessary to review periodically various cases and compare results with those in the literature in order to evolve more efficient means of treatment. We have, therefore, prepared a review of all malignant lesions of the faucial tonsil treated at the University of Minnesota Hospitals Department of Deep X-ray Therapy during the period 1926 through 1950.

This group comprises 103 cases in all. Two cases have been eliminated because they were treated elsewhere before being seen here. We have, then, 101 cases to examine. Histologically these fall into the groups as noted in Table I. This distribution agrees

TABLE I

HISTOLOGICAL GROUPING

Type	No.
Squamous Cell Carcinoma	72
Transitional Cell Carcinoma	6
Undifferentiated Carcinoma	2
Lymphoepithelioma	5
Lymphosarcoma	13
Leukemia	2
Hodgkins Disease	1
	<u>101</u>

satisfactorily with other series reported but differs with the opinion of Smith and Gault who feel that the transitional cell carcinoma is the most frequent lesion of the tonsil.¹³

Pathologically malignant lesions of the tonsil can be separated both grossly and microscopically. Grossly the

carcinomas are usually exophytic and frequently arise from the upper pole, spreading to the soft palate. They often ulcerate. Microscopically they can be divided into (1.) the squamous cell carcinomas which are characterized by nests and cords of squamous cells invading normal tissues. There may be varying degrees of keratinization and epithelial pearl formation. Mitotic figures are not prominent ordinarily. (2.) The transitional cell carcinoma is made up of cells of relative uniformity of size with clear cytoplasm and oval hyperchromatic nuclei. Mitotic figures vary greatly in number and keratinization or epithelial pearl formation is not seen. It tends to grow in solid sheets and invades widely. (3.) The undifferentiated carcinoma is a microscopically indeterminate group which can be classified neither as a squamous cell carcinoma nor as a true transitional cell carcinoma. It is usually extremely malignant microscopically.

Less frequent is the lymphoepithelioma which is felt by many to be a carcinoma of either the transitional or undifferentiated type. This lesion makes up 4 - 8% of the total group². However, because of its different clinical behavior, it is often considered as a separate lesion. As described by Regaud it is characterized by cords of clear epithelial cells infiltrated by numerous lymphocytes. They metastasize to lungs, liver, and bones, and carry to the metastases their distinctive histologic pattern. They are frequently confused with the transitional cell or undifferentiated carcinoma. Grossly they are smooth and somewhat lobulated. The cervical lymphnodes are almost always involved. They frequently ulcerate and metastasize rapidly and widely.

The lymphosarcomas ordinarily do not ulcerate but become very large and frequently produce symptoms of obstruction. There is often bilateral cervical lymph-

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node involvement. The tonsil may be the origin with rapid spread to generalized disease but at least one series shows a high incidence of five year survivals.⁷ Microscopically these lesions are indistinguishable from other lymphosarcomatous lesions involving lymphnodes.

Leukemia and Hodgkins Disease likewise are not microscopically distinguishable in the tonsil from these lesions elsewhere and will not be described in detail here.

We have made no attempt to correlate the over-all incidence of cancer of tonsil to cancer as a whole in this hospital. According to other reports cancer of the tonsil comprises 1.5 to 3 per cent of all forms of cancer and is the second most common form of cancer of the upper air passages, cancer of the larynx being the most common.^{1, 10, 11, 12} Carcinomas are said to occur more frequently in men in the fifth and sixth decades with 10 per cent of the cases occurring in women^{1, 10, 11, 12, 15}. In our over-all group including all diagnoses we find 16 per cent of cases in women and 84 per cent in men. The average age was 62.9 years. If, however, we exclude the 13 cases of lymphosarcoma, 2 cases of leukemia and the 1 case of Hodgkins Disease, the figures are: 75 males (88%) and 10 females (12%) with an average age of about 61 years. Approximately one-third of the cases of lymphosarcoma and lymphoepithelioma are said to be in women and the age incidence is in the third and fourth decades. In our group of lymphosarcomas, of 13 cases, 5 (38%) were female and 7 (62%) male with an average age of 64 years, the latter figure being considerably different from other reports which give the average age at a considerably lower figure^{1, 7}.

The clinical evolution of cancer of the tonsil is usually quite insidious and not infrequently the first symptom noted is a mass in the neck (46%)¹⁵. A growth in the mouth as the presenting

symptom is relatively infrequent (9%)¹⁵. Usually there is noted a discomfort of foreign body sensation. Pain is infrequent except in advanced cases and otalgia and dysphagia are usually late occurrences except in Lymphosarcoma where obstruction may occur quite early^{1, 7}. In our series the duration of symptoms varied from one or two days to as long as two years prior to treatment. Several cases were found on routine pathological examination of tissue following tonsillectomy.

The etiology of these lesions is obscure but it can be stated that a multitude of traumatic insults and inflammatory conditions which may predispose to malignancy occur in the tonsil as well as in the rest of the oral cavity. Poor oral hygiene and smoking may play prominent roles. In two of our cases there was a known Leukoplakia of the tonsillar area prior to the onset of a frank carcinoma.

The diagnosis can usually easily be made by visual inspection, but biopsy is necessary. Palpation is also necessary to clearly delineate the extent of the lesion and to help identify lymphnode metastases. The possibility of tuberculous or luetic ulceration must be excluded.

The age incidence is of particular importance in these lesions. The average age in our series is 62.9 years and as can be seen from Table II, the greatest number of cases occur in the sixth and seventh decades. The youngest patient was 32 years of age and the oldest was 86 years of age at the time of treatment. Due to the advanced age of most of the patients, relatively few of them have an opportunity to survive five years after treatment.

It is generally felt that the treatment of Cancer of the Tonsil is best done by means of radiation therapy, either external radiation, teluradium therapy, interstitial radiation, or combinations of these methods. Most authors agree that surgery has nothing to offer

TABLE II

AGE INCIDENCE BY DECADES									
Decade	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No. of Patients	0	0	0	8	8	13	34	33	5

in the treatment of the primary lesion because of the high operative mortality and generally poor results.^{1, 10} Martin and Sugarbaker conclude that "despite these theoretical advantages (accessibility and lack of vital function), surgery offers little in the treatment of this disease, since the primary lesions are seldom small or sufficiently localized in the tonsillar fossa to be operable when just seen"¹⁴. After a thorough review of the surgical literature, they concluded also that "in the final analysis, one must conclude from its history that the operative treatment of cancer of the tonsil justifies Despons' epithet of 'Surgery of despair'." The possibility of radical neck dissection must be considered and in selected cases where the primary lesion is controlled may well be indicated. Ackerman and del Regato consider it to be contraindicated because of (1) the high position of the involved nodes and (2) the fact that nodes usually react rather favorably to irradiation.¹ Taylor and Nathanson, however, believe that radical neck dissection may be indicated in occasional cases.¹⁴ Our method of treatment has been almost exclusively radiation, although a few patients have had surgery of one type or another. Prior to 1936 the usual form of therapy consisted of 800 to 1000 roentgens in air to each of two fields (usually lateral fields) using 200 KVP (peak) and 0.5 to 1.0 mm. Copper filter. The treatment was given in from 7 to 14 days. After the advent of the Coutard techniques the therapy was changed to include a total of 4 fields, 3 on the involved side plus the opposite lateral. The dosage then ranged from 900 to 1500 roentgens in air to each field in 21 to 30 days using either 200 or 220 KVP (peak), 1.0 mm Copper filter with a HVL of 1.0 to 1.7 of Copper.

These dosages produce estimated tumor doses of 2600 to 4400 roentgens. Radon implantation as supplemental irradiation has been used since 1926, the usual dose being calculated as 5000 gamma-ray roentgens with even distribution of the implants, both the primary lesion and involved nodes being implanted as necessary. In general, the dose delivered to the lymphosarcomas has been similar to the carcinomas and of the 13 patients in this group 6 were implanted with radon. Of the total of 3 who survived, five or more years, all were implanted. Of the 6 who survived 3 years, only the same three who survived five years had been implanted thus suggesting that all cases should be implanted if the disease is not too far advanced. However, many cases were already generalized by the time implantation was desirable and in such cases it is obvious that nothing will suffice.

The prognosis for patients with malignant lesions of the tonsil is not markedly different from other forms of intra-oral cancer, but does vary between the carcinomas, lymphoepitheliomas and lymphosarcomas. In the over-all picture (Table III) we find three and five year survivals of 35% and 26% respectively which compares favorably with series reported elsewhere in the literature (Table VIII)*. The 39% three year survival reported by Berven deals only with patients treated with a radium pack and local radium to the lesion^{3, 4}. In an earlier series treated with irradiation, there were no three year survivals but primary healing was obtained in 25% of 28 cases^{3, 4}. Coutard's series showing

* Refer to Bibliography Nos. 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, and 15.

TABLE III

SURVIVAL OF OVERALL GROUP OF MALIGNANCY OF THE TONSIL

Year	No. of Cases	Years of Survival																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1926	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1927	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1928	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
1929	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1930	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1931	2	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
1932	1*	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1933	2	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
1934	4	3	3	3	3	3	3	3	2	2	2	0	0	0	0	0	0	0
1935	3	2	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0
1936	7	4	3	3	3	2	2	2	2	1	1	1	1	1	1	1	1	0
1937	8	7	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
1938	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1939	10	6	5	4	3	3	2	2	2	1	1	1	0	0	0	0	0	0
1940	7	4	3	3	2	2	2	2	1	1	1	0	0	0	0	0	0	0
1941	3	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
1942	8	5	4	4	2	2	1	1	1	1	0	0	0	0	0	0	0	0
1943	3	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
1944	6*	3	3	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0
1945	6	4	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
1946	3	2	2	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0
1947	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1948	7	4	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1949	5	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cases	101	101	98	93	86	84	81	75	69	66	58	55	48	38	36	28	21	0
Survived		62	39	33	24	22	18	15	13	9	8	3	2	2	2	2	1	0
Per Cent Survival		61	40	35	28	26	22	20	19	14	14	5	4	5	5	7	5	0

*Two patients who received only 1 treatment and failed to return for completion of therapy.

TABLE IV

SURVIVAL OF CASES OF CARCINOMA (Lymphosarcoma, Leukemia, Hodgkins excluded)

Year	No. of Cases	Years of Survival																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1926	2	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1927	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1928	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
1929	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1930	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1931	2	2	2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
1932	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1933	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1934	4	3	3	3	3	3	3	3	2	2	2	0	0	0	0	0	0	0
1935	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1936	7	4	3	3	3	2	2	2	2	1	1	1	1	1	1	1	1	0
1937	8	7	2	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
1938	2	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1939	9	5	4	3	2	2	1	1	1	1	1	1	1	0	0	0	0	0
1940	6	3	2	2	2	2	2	2	1	1	1	0	0	0	0	0	0	0
1941	3	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
1942	8	5	4	4	2	2	1	1	1	1	0	0	0	0	0	0	0	0
1943	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1944	6	3	3	3	1	1	1	0	0	0	0	0	0	0	0	0	0	0
1945	4	3	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0
1946	2	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
1947	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1948	3	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1949	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1950	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cases	85	85	82	78	75	73	71	67	61	60	52	49	43	34	32	24	17	0
Survived		52	31	26	20	18	14	11	9	7	6	3	2	2	2	2	1	0
Per Cent Survival		61	38	33	27	25	20	16	15	12	11	6	5	6	6	8	6	0

26% three year and 23% five year survivals dealt only with epitheliomas. His later report of 32% five year (21 of 65 patients) likewise dealt only with epitheliomas.^{5, 6} Duffy's figures are of interest as his group was analyzed in greater detail.⁸ He included 45 patients with operable metastases of which 7 (16%) survived three years while of 46 patients without metastasis, 15 (33%) survived three years. Of his total group of 176 patients, 32 (18%) survived three years. Schall reported a group of 230 patients of whom 13 were untreated and 99 were omitted from the statistical analysis because of insufficient treatment (palliative).¹² Of the 118 included, 23 (18%) survived varying periods. Other series by Mattick,¹¹ Walker, and Schultz,¹⁵ and Martin and Sugarbaker¹⁰ show similar results (Table VIII), the latter reporting 157 cases of which 9 were eliminated either because the patient was lost without recurrence (2) or because they were dead of causes other than cancer (7). Of their 148 cases, 26 (18%) were well five years. 75% of their cases showed metastasis at the time of treatment.

In our series (Table III) we have included all patients treated primarily here. Two patients were eliminated as they had been treated earlier by irradiation elsewhere. All patients lost to follow-up are considered as being dead from cancer. If we exclude two patients who received only one treatment and then failed to return for completion of therapy and four cases who died of causes other than cancer (no cancer at post mortem) we then find a corrected five year survival rate of 28%. Women are said to have a better prognosis than men but in our series this has not been true, the survival rates for the two sexes being almost identical.

If we examine the lymphosarcoma group we find 13 patients. Of these 13, 6 (46%) survived three years and 3 of a possible 10 (30%) survived five years. Of the 5 lymphoepitheliomas, 4 (80%) survived three years and 3 (60%) five years. No case of transitional cell

carcinoma survived more than two years from the onset of treatment. Of the two cases of leukemia, 1 has survived two years to date and the other died of generalized disease 11 months after initial treatment. The one case of Hodgkins Disease survived 10 years but was treated repeatedly to the abdomen, inguinal regions and axillae following treatment of the tonsil. Examining Table IV which included all of the carcinomas and the lymphoepitheliomas we find three and five year survival rates of 33% and 25% respectively.

The presence or absence of metastases is said to affect the survival rates, the absence of palpable cervical lymph nodes indicating a better prognosis. We have analyzed our cases from the standpoint of results with metastases, with no metastases or local extension and with local extension of the primary lesion but no evident lymphnode metastases (Table V). In the carcinoma group (Table V) there were 13 patients who had no evidence of local extension or metastases. Of these 13, only 12 could have three years and 6 (50%) did so. In the 9 patients with local extension but no metastases, all 9 could have survived five years and we find that 5 (56%)

TABLE V

Lesion	PRESENCE OR ABSENCE OF METASTASES			Totals
	No. with Metastases	No. without Metastases	No. with Local Extension without Metastases	
Carcinoma	58	13	9	80
Lymphosarcoma	9	3	1	13
Lymphoepithelioma	2	2	1	5
Leukemia	2	0	0	2
Hodgkins Disease	1	0	0	1
Totals	72	18	11	101

survived three years and 4 (45%) survived five years. Considering the lymphosarcomas we find that 1 of 3 cases

survived three and five years with no evidence of metastases. The one patient with local extension but no metastases survived seven years. Of the lymphoepitheliomas, the one patient with local extension but no metastases survived seven years while only 1 of the 2 with no metastases or local extension survived three and five years. Local extension of the lesion, at least within limits, does not seem to compromise the survival rates.

TABLE VI

Carcinoma Survival Rates With and Without Metastasis

Group*	No. of Patients	No. Survived	Per Cent Survived
<u>3 year survival</u>			
A.	12	6	50
B.	9	5	56
C.	51	11	21
<u>5 year survival</u>			
A.	12	4	33
B.	9	4	45
C.	47	7	15

- *A. Without metastases or local extension of the primary.
- B. Without metastases with local extension of the primary.
- C. With metastases with or without local extension of the primary.

Patients with demonstrable metastases do not have as good a survival rate (Table VI) but it is obvious that a large share of these patients survive at least one year (Tables III and IV). Irradiation is, therefore, a good palliative measure and ought to be used whenever possible to relieve obstruction and enable patients to eat and get along without undue suffering. Cervical nodes frequently respond quite well since of the total patients surviving three years (33) 18 showed evidence of metastases to the cervical nodes prior to treatment. However, of the 22 patients surviving five years, 12 (55%) were in the group

showing no metastases or some local extension and only 10 (45%) in the group which showed evidence of metastases at the time treatment was instituted.

Evidence of persistence of either the primary lesion or of the lymphnode metastases after completion of treatment was found in 33 carcinoma patients but only 7 patients developed metastatic nodes subsequent to completion of therapy (Table VII). One patient with lymphoepithelioma developed a recurrence (or a second primary) 15 years after treatment. The recurrence was microscopically indistinguishable from the original lesion and occurred in the site of the first lesion. Two transitional cell carcinomas showed metastatic nodes subsequent to treatment as did four lymphosarcomas, one leukemia, and the one Hodgkins Disease. Most of these last three groups were generalized disease.

Surgical procedures of various sorts have been used in these patients, both before and after irradiation therapy. Eight patients had tonsillectomies with lesions being discovered at routine pathological examination of the tonsils. Two

TABLE VII

EVIDENCE OF PERSISTENCE OR RECURRENCE

	A.	B.	C.
Carcinoma (Squamous)	12	33	7
Lymphoepithelioma	0	1	0
Transitional Cell Carcinoma	0	0	2
Lymphosarcoma	0	0	4
Leukemia	0	0	1
Hodgkins Disease	0	0	1

- A. Persistence of primary lesion at completion of therapy.
- B. Persistence or recurrence of primary or nodes in treated areas.
- C. Development of nodes after treatment.

cases had neck dissections prior to irradiation and 4 cases following irradiation. Two carotid ligations were done

subsequent to irradiation. Local removal of a mass in the neck was done on two patients and partial mandibulectomy for radio-necrosis of the mandible was done in two cases.

Complications encountered range from the usual dry mouth, mucositis and epithelitis to frank hemorrhage from the tumor site in 4 cases (after completion of therapy). Only two cases of carcinoma showed distant metastases, to the liver in both cases, and one of these died eight years after treatment. One patient with carcinoma developed local recurrence in the hypopharynx six years after treatment. There were two cases of radio-necrosis of the mandible.

Radiation therapy of these lesions is a severe strain on the general condition of the patient and adequate measures must be taken to assure adequate food and fluid intake, especially during the height of the reaction. These include adequate oral hygiene, the use of liquid petrolatum or lozenges for dry mouth, pontocaine sprays or codeine

for relief of pain, the use of water soluble base ointment for the moist epithelitis and finally the pretreatment removal of teeth in heavily irradiated areas and antibiotics for infection in order to prevent radiation necrosis of the mandible. The newer chlorophyll mouth washes have proved effective in helping control the offensive odor associated with the far advanced lesion during the height of the reactions. Where metastases are being treated, the larynx should be protected in order to prevent possible necrosis of the laryngeal cartilages. Hemorrhage due to deep slough and necrosis may require ligation of the external carotid artery and its branches. Recurrence is usually handled by additional radon implantation and occasionally further external irradiation.

Three patients developed second primary lesions subsequent to the treatment of the tonsil. One patient developed a squamous cell carcinoma of the lip and a basal cell carcinoma of the cheek. Another patient developed an adenocarcinoma of an oil gland and in addition developed

TABLE VIII

COMPARISON OF RESULTS

Author	3 Year Survivals			5 Year Survivals		
	Total No. Patients	No. Survived	Per Cent Survived	Total No. Patients	No. Survived	Per Cent Survived
Berven	18	7	39			
Coutard	46	12	26	46 65	11 21	23 32
Mattick	162 36 126	17 9 8	10 without met. 25 with met. 6			
Walker & Schultz	56 34 22 28 23	14 7 7 9 5	25 21 with met. 32 without met. 32 Supervolt 18 Hi-Voltage	39 23 16 21 18	6 2 4 5 1	15 9 25 24 6
Duffy	176 46 18 45 67	32 15 5 7 5	18 33 without metastasis 28 with metastases after admission 15 with operable metastases 7 with inoperable metastases			
Martin & Sugarbaker				148	26,	18
Stenstrom	93	33	35	84	22	26

a carcinoma in the opposite tonsil four years after the original treatment. One patient died of a squamous cell carcinoma of the lung five years after treatment of the tonsil (autopsy).

Summary and Conclusion

103 cases of cancer of the tonsil have been reviewed. The three and five year survival rates compare favorably with, and for the most part are better than, other series reported in the literature.

A high tumor dose is required but it is unwise to give a definite value as patients vary widely in individual tolerance making individual evaluation necessary.

The addition of radon implantation, with careful distribution, is a desirable method of increasing the tumor dose of the primary lesion and of controlling lymphnode metastases.

Involvement of neighboring structures, if not too extensive, and without lymphnode metastases, does not compromise the chances for survival.

Small lesions with no evidence of metastases have a better long term prognosis.

Definite palliation of considerable duration is often obtained in advanced lesions if the treatments are discontinued before the reaction becomes too severe.

While dissection of enlarged submaxillary and cervical lymphnodes may be indicated when the primary lesion is controlled, it should be noted that such metastases may be eradicated with irradiation.

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II. MEDICAL SCHOOL NEWS

Coming Events

- April 7-9 Continuation Course in Surgery for General Physicians
April 8 George E. Fahr Lectureship; "Coarctation of the Aorta," Dr. Robert E. Gross, Ladd Professor of Children's Surgery, Harvard Medical School, and Surgeon-in-Chief, Children's Hospital, Boston; Owre Amphitheater; 8:15 p.m.
April 14-19 Continuation Course in Proctology for General Physicians
April 17-19 Continuation Course in Obstetrics for Specialists
April 18 Duluth Clinic Lectureship; "Newer Concepts of Fetal Circulation," Dr. S.R.M. Reynolds, Carnegie Laboratory, Baltimore, Maryland; Owre Amphitheater; 8:00 p.m.
April 21-23 Continuation Course in Pediatrics for Specialists
April 21 Clarence M. Jackson Lecture; "Respiratory Diseases -- Changing Concepts," Dr. John M. Adams, Professor of Pediatrics, University of California, Los Angeles; Museum of Natural History Auditorium; 8:15 p.m.

George E. Fahr Lecture

Dr. Robert E. Gross, Ladd Professor of Children's Surgery, Harvard Medical School, and Surgeon-in-Chief, Children's Hospital, Boston, will give the Second Annual George E. Fahr Lecture on Tuesday evening, April 8. This lectureship was made possible by gifts from former students, patients, and friends of Dr. Fahr. Each year an outstanding worker in the field of cardiovascular disease will be brought to our campus. On this occasion, Dr. Gross will discuss, "Coarctation of the Aorta." He will also participate in a continuation course in Surgery for General Physicians which will be presented at the Center for Continuation Study April 7-9.

Duluth Clinic Lectureship

The Annual Duluth Clinic Lecture will be presented on Friday, April 18. This year we will welcome to our campus for this lecture Dr. S.R.M. Reynolds of

the Carnegie Laboratory in Baltimore, Maryland. Dr. Reynolds' topic will be, "Newer Concepts of Fetal Circulation." Dr. Reynolds will also take part in a continuation course in Obstetrics for Specialists. This course will be held at the Center for Continuation Study on April 17-19 under the direction of Dr. John L. McKelvey, Professor and Head of the Department of Obstetrics and Gynecology. The course will deal primarily with various aspects of the physiology of the fetus.

Hospital Host to Chicago Surgical Society

On Friday and Saturday, March 28 and 29, Dr. Owen H. Wangenstein and his staff had the pleasure of being hosts to the Chicago Surgical Society. During the two-day session, a variety of surgical subjects was discussed by various members of our Surgery Department. The visitors also attended the regular hospital staff meeting and entered into the discussion following the presentation of the paper.

Faculty News

Dr. Roy G. Holly, Instructor, Department of Obstetrics and Gynecology, recently participated in a continuation course for general practitioners at the University of Utah Medical School. Dr. Holly discussed "Adenocarcinoma of the Endometrium" and "Iron Metabolism in Pregnancy."

Dr. Lyle J. Hay, Chief of the Surgical Service at Veterans Administration Hospital, recently discussed "Volvulus of the Colon" for the Swedish Hospital staff meeting. He also took part in a panel discussion of gastro-intestinal bleeding at the meeting of the American College of Surgeons which was held in Minneapolis on March 21.

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There will be no Bulletin published on April 11 which is Good Friday. The date of the next Bulletin will be April 18. We would like to extend our best wishes for the Easter season.

III.

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL
WEEKLY CALENDAR OF EVENTS

Physicians Welcome

April 7 - 12, 1952

Monday, April 7

Medical School and University Hospitals

- 9:00 - 9:50 Roentgenology-Medicine Conference; L. G. Rigler, C. J. Watson and Staff; Todd Amphitheater, U. H.
- 9:00 - 10:50 Obstetrics and Gynecology Conference; J. L. McKelvey and Staff; W-612, U. H.
- 10:00 - 12:00 Neurology Rounds; A. B. Baker and Staff; Station 50, U. H.
- 11:30 - Tumor Conference; Doctors Kremen, Moore, and Stenstrom, Todd Amphitheater, U. H.
- 12:15 - Obstetrics and Gynecology Journal Club; Staff Dining Room, U. H.
- 12:30 - Physiology Seminar; Some Central and Peripheral Factors Involved in the Vestibular Reflexes; W. P. Koella; 214 Millard Hall.
- 1:30 - 2:30 Pediatric-Neurological Rounds; R. Jensen, A. B. Baker and Staff; U. H.
- 4:00 - Pediatric Seminar; Juvenile Diabetes; Margaret Huelkamp; Sixth Floor West, U. H.
- 4:00 - Seminar on Fluid and Electrolyte Balance; Total Body Water; Mead Cavert; 102 Institute of Anatomy.
- 4:30 - 5:30 Dermatological Seminar; M-346, U. H.
- 4:30 - Public Health Seminar; 15 Owre Hall.
- 5:00 - 6:00 Urology-Roentgenology Conference; C. D. Creevy, O. J. Baggenstoss, and Staff; Eustis Amphitheater.

Minneapolis General Hospital

- 7:30 - Fracture Grand Rounds; Dr. Zierold; Sta. A.
- 10:30 - 12:00 Tuberculosis and Contagion Rounds; Thomas Lowry; Station M.
- 11:00 - Pediatric Rounds; Franklin H. Top; 7th Floor.
- 12:30 - Surgery Grand Rounds; Dr. Zierold; Sta. A.
- 1:00 - X-ray Conference; Classroom, 4th Floor.
- 1:30 - Pediatric Rounds; Robert Ulstrom; 4th Floor.

Monday, April 7 (Cont.)

Veterans Administration Hospital

- 9:00 - G. I. Rounds; R. V. Ebert, J. A. Wilson, Norman Shriffter; Bldg. I.
11:30 - X-ray Conference; Conference Room; Bldg. I.
2:00 - Psychosomatic Rounds; Bldg. 5.
3:30 - Psychosomatic Rounds; C. K. Aldrich; Bldg. I.

Tuesday, April 8

Medical School and University Hospitals

- 9:00 - 9:50 Roentgenology-Pediatric Conference; L. G. Rigler, I. McQuarrie and Staff; Eustis Amphitheater, U. H.
9:00 - 12:00 Cardiovascular Rounds; Station 30, U. H.
12:00 - 1:30 Selected Topics, Permeability and Metabolism; Nathan Lifson; 129 Millard Hall.
12:30 - 1:20 Pathology Conference; Autopsies; J. R. Dawson and Staff; 102 I. A.
4:00 - 5:00 Pediatric Rounds on Wards; I. McQuarrie and Staff; U. H.
4:30 - 5:30 Clinical-Medical-Pathological Conference; Todd Amphitheater, U. H.
5:00 - 6:00 X-ray Conference; Presentation of Cases by General Hospital Staff; Drs. Lipschultz and Von Drashek; Eustis Amphitheater, U. H.
* 8:15 p.m. George E. Fahr Lectureship; Coarctation of the Aorta; Robert E. Gross, Ladd Professor of Children's Surgery, Harvard Medical School, and Surgeon-in-Chief, Children's Hospital, Boston, Massachusetts; Owre Amphitheater.

Ancker Hospital

- 1:00 - 2:30 X-ray-Surgery Conference; Auditorium.

Minneapolis General Hospital

- 8:00 - Pediatric Rounds; Spencer F. Brown; 5th Floor.
10:30 - 12:00 Medicine Rounds; Thomas Lowry and Staff; Station F.
11:00 - Pediatric Rounds; Erling S. Platou; 7th Floor.

Veterans Administration Hospital

- 7:30 - Anesthesiology Conference; Conference Room, Bldg. I.
8:30 - Infectious Disease Rounds; Dr. Hall.

Tuesday, April 8 (Cont.)

Veterans Administration Hospital (Cont.)

- 8:45 - Surgery Journal Club; Conference Room, Bldg. I.
9:00 - Liver Rounds; Drs. Nesbitt and MacDonald.
9:30 - Surgery-Pathology Conference; Conference Room, Bldg. I.
10:30 - Surgery Tumor Conference; Conference Room, Bldg. I.
1:00 - Surgery Chest Conference; T. Kinsella and Wm. Tucker; Conference Room, Bldg. I.
2:00 - 2:50 Dermatology and Syphilology Conference; H. E. Michelson and Staff; Bldg. III.
3:30 - 4:20 Clinical Pathological Conference; Conference Room, Bldg. I.

Wednesday, April 9

Medical School and University Hospitals

- 8:00 - 8:50 Surgery Journal Club; O. H. Wangensteen and Staff; M-109, U. H.
8:00 - 9:00 Roentgenology-Surgical-Pathological Conference; Norman Jacob and L. G. Rigler; Todd Amphitheater, U. H.
11:00 - 12:00 Pathology-Medicine-Surgery Conference; Pediatrics Case; O. H. Wangensteen, C. J. Watson and Staff; Todd Amphitheater, U. H.
5:00 - 5:50 Urology-Pathological Conference; C. D. Creevy and Staff; Eustis Amphitheater, U. H.
5:00 - 6:00 Vascular Conference; Todd Amphitheater, U. H.
5:00 - 7:00 Dermatology Clinical Seminar; Dining Room, U. H.
7:00 - 8:00 Dermatology Journal Club; Dining Room, U. H.
8:00 - 10:00 Dermatological-Pathology Conference; Review of Histopathology Section; R. Goltz; Todd Amphitheater, U. H.

Ancker Hospital

- 8:30 - 9:30 Clinico-Pathological Conference; Auditorium.
3:30 - 4:30 Journal Club; Surgery Office.

Minneapolis General Hospital

- 8:00 - Pediatric Allergy Rounds; Lloyd Nelson; 4th Floor.
10:30 - 12:00 Medicine Rounds; Thomas Lowry and Staff; Station D.

Wednesday, April 9 (Cont.)

Minneapolis General Hospital (Cont.)

- 11:00 - Pediatric Rounds; Franklin H. Top; 7th Floor.
- 12:30 - Pediatric Staff Meeting; Pediatric Problems in Gynecology; Titus Bellville; 4th Floor Annex.
- 12:30 - EKG Conference; Boyd Thomas and Staff; 302 Harrington Hall.
- 1:30 - Pediatric Rounds; E. J. Huenekens and Robert Ulstrom; 4th Floor.
- 2:00 - 4:00 Infectious Disease Rounds; 8th Floor.
- 4:00 - 5:00 Infectious Disease Conference; Classroom, 8th Floor.

Veterans Administration Hospital

- 8:30 - 10:00 Orthopedic X-ray Conference; Conference Room, Bldg. I.
- 8:30 - 12:00 Neurology Rehabilitation and Case Conference; A. B. Baker.
- 7:00 p.m. Lectures in Basic Science of Orthopedics; Conference Room, Bldg. I.

Thursday, April 10

Medical School and University Hospitals

- 8:00 - 9:00 Vascular Rounds; Davitt Felder and Staff Members from the Departments of Medicine, Surgery, Physical Medicine, and Dermatology; Heart Hospital Amphitheater.
- 9:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; E-221, U. H.
- 11:00 - 12:00 Cancer Clinic; K. Stenstrom and A. Kremen; Todd Amphitheater, U. H.
- 1:30 - 4:00 Cardiology X-ray Conference; Heart Hospital Theatre.
- 3:30 - Medicine-Pediatric Infectious Disease Conference; Heart Hospital Auditorium.
- 4:00 - 5:00 Physiology-Surgery Conference; Todd Amphitheater, U. H.
- 4:30 - 5:20 Ophthalmology Ward Rounds; Erling W. Hansen and Staff; E-534, U. H.
- 5:00 - 6:00 Radiology Seminar; Diskography; Drs. Harold Peterson and Jack Friedman; Eustis Amphitheater, U. H.
- 7:30 - 9:30 Pediatric Cardiology Conference and Journal Club; Review of Current Literature 1st hour and Review of Patients 2nd hour; 206 Temporary West Hospital.

Minneapolis General Hospital

- 8:00 - Pediatric Rounds; Spencer F. Brown; 5th Floor.
- 8:30 - Neurology Rounds; William Heilig; 4th Floor.
- 11:00 - Pediatric Rounds; Erling S. Platou; 7th Floor.

Thursday, April 10 (Cont.)

Minneapolis General Hospital (Cont.)

1:00 - Fracture-X-ray Conference; Dr. Zierold; Classroom.

Veterans Administration Hospital

8:00 - Surgery Ward Rounds; Lyle Hay and Staff; Ward 11.
8:00 - Surgery Grand Rounds; Conference Room, Bldg. I.
11:00 - Surgery Roentgen Conference; Conference Room, Bldg. I.

Friday, April 11 (HOLIDAY)

Saturday, April 12

Medical School and University Hospitals

7:45 - 8:50 Orthopedic X-ray Conference; W. H. Cole and Staff; M-109, U. H.
9:00 - 10:30 Pediatric Grand Rounds; I. McQuarrie and Staff; Eustis Amphitheater.
9:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; Heart Hospital Amphitheater.
9:15 - 10:00 Surgery-Roentgenology Conference; L. G. Rigler, J. Friedman, Owen H. Wangenstein and Staff; Todd Amphitheater, U. H.
10:00 - 11:30 Surgery Conference; Todd Amphitheater, U. H.
10:00 - 12:50 Obstetrics and Gynecology Grand Rounds; J. L. McKelvey and Staff; Station 44, U. H.
11:30 - Anatomy Seminar; Gonadal Abnormalities in Mammals Subjected to Exogenous Sex Hormones; L. J. Wells; The Chemical Cytology of the Blood, Roland D. Meader; 226 Institute of Anatomy.

Ancker Hospital

8:30 - 9:30 Surgery Conference; Auditorium.

Minneapolis General Hospital

8:00 - Pediatric Rounds; George Lund; 5th Floor.
11:00 - 12:00 Medical-X-ray Conference; O. Lipschultz, Thomas Lowry, and Staff; Main Classroom.
11:00 - Pediatric Clinic; C. D. May and Floyd Denny; Classroom, 4th Floor.

Veterans Administration Hospital

8:00 - Proctology Rounds; W. C. Bernstein and Staff; Bldg. III.
8:30 - Hematology Rounds; P. Hagen and E. F. Englund.

* Indicates special meeting. All other meetings occur regularly each week at the same time on the same day. Meeting place may vary from week to week for some conferences.