criticisms while the work was in progress; the nursing staff of the Connaught Hospital for their assistance in looking after some of the cases; and Mr. P. Q. A. John, resident dispenser at the Prison Hospital, who was responsible for the care of the cases observed at the gaol.

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HODGKIN'S DISEASE AND DEEP X-RAY THERAPY

BY

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The total number of cases under review is 201. These have been treated between the years 1923 and 1934. The great majority of the patients are hospital cases who from the precarious nature of their occupation and living are not infrequently lost sight of and cannot be traced. These cases are simply shown as alive up to the time when last seen, so any comparative statistics given are the minimum, and with fuller knowledge would naturally be higher. My grateful thanks are extended to the members of the staff and others for the great help given in treating and following the cases.

Analysis of Cases

The disease attacks approximately two males to one female. The primary symptoms where known are as follows:

	Cases		Cases
Right cervical	43	Jaundice	1
Left cervical	38	Facial paralysis	1
Right axilla	8	Tonsil	2
Left axilla	2	Herpes	1
Right inguinal	5	Sciatica	2
Left inguinal	4	Purpura	1
Abdominal	7	Appendicitis	1
Pyrexia	6		

Various structures of the body were definitely affected as follows at some time or other in the course of the disease:

	Cases		Cases
Liver	11	Sternum and sterno-clavicular	5
Spleen	49	Spine	12
Breast	10	Hip	2
Mediastinum and lungs	76	Humerus	1

The spleen where affected is usually just palpable. The breast shows a diffuse infiltration and may be twice the

size of the other. In one case there was ulceration. In the mediastinal cases eight were massive, filling the chest cavity. Twenty-three only showed enlarged hilum glands. In the spinal cases two distinct conditions are present: one a definitely encapsulated tumour in the spinal cord itself, the other a subacute destructive osteitis of the vertebrae themselves. The latter is usually accompanied by severe pain.

The cervical, axillary, and inguinal glands are the ones most affected; of the others, one or both parotids, the occipital, submental, or epitrochlear are occasionally enlarged, and in one case the popliteal.

Clinical Features

Asthenia is the prominent symptom in most cases. It is associated with an anaemic appearance out of all proportion to the blood picture. Typical blood reports are as follows:

Case	Haemoglobin	Red Blood Cells	Leucocytes	Polymorpho-nuclears	Lymphocytes	Eosinophils
	per cent.					per cent.
1	67	4,300,000	8,600	—	—	2.0
2	90	4,000,000	11,200	69	22	2.0
3	77	4,600,000	13,000	76	18	1.5
4	63	4,000,000	16,000	86	10	2.5
5	81	4,500,000	13,000	72	14	2.0
6	80	4,000,000	8,000	62	35	2.0

Atypical blood reports:

7	77	4,600,000	15,000	40	16	39.0
8	90	4,200,000	6,500	—	—	3.5
9	68	—	8,500	—	—	5.0
10	62	3,900,000	38,000	70	12	11.0
11	80	4,600,000	8,000	61	25	6.5
12	45	3,200,000	12,200	38	22	35.0

In the typical case we have a marked drop in the haemoglobin, otherwise a more or less normal blood picture except that there is usually a mild leucocytosis. In certain cases—especially the abdominal, where the iliac and pelvic glands are affected—we may get a marked eosinophilia, as illustrated, and in doubtful cases this may be of diagnostic importance.

Pyrexia is at times the outstanding feature of the case and may persist even when all discoverable glands have disappeared under treatment. It will have been noticed under primary symptoms that the right and left cervical glands are not only by far the most frequent but that they are practically equally affected. The proportion of mediastinal involvement is, however, altogether different; twice as many cases are affected when the right is the primary side than when the left comes first. If any glands are found present, with full treatment and disappearance the temperature may rapidly subside to normal. In two cases the discovery of glands in the upper abdomen explained the cause of the persistent pyrexia. In one case the spleen appeared to be the sole cause.

Abdominal glandular enlargements may be primary or secondary. If primary and the iliac glands are affected oedema of one or both legs may be the first symptom, if the aortic glands, acute obstruction of the bowels may be the first sign. In one case this was found and relieved at operation, in the other it was suspected as a late symptom and was relieved by irradiation. In one case

enlargement of the hilum glands caused jaundice as the first symptom, and in one other the symptoms were those of appendicitis. The true condition was discovered at the operation. Primary enlargements generally do well as a result of treatment. Late or secondary enlargements, however, whilst they may rapidly disappear under treatment, are usually of grave significance, indicating the failure of the general body resistance.

Pain, if persistent, is always suspicious in Hodgkin's disease. Two cases of sciatica, one of brachial neuritis, and one of lumbago were all found to be due to spinal Hodgkin's. Also one case of herpes was due to the same cause.

Not infrequently there has been a history of tuberculous glands, and it is only by local excision and section that the real nature of the fresh glandular enlargements have been discovered. One such case some years after treatment for Hodgkin's disease developed phthisis and was removed to a sanatorium.

Symptoms referable to the stomach are not common. Splenic pain, severe general neuritis, profuse sweats, prickly skin, paralysis of vocal cord, acute deafness of one ear, alopecia, and multiple skin nodules have been occasionally noted. Concurrent diseases were malaria, 3 cases; trench fever, 1 case; psoriasis, 1 case; rodent ulcer, 1 case; infantile paralysis, 1 case; epistaxis, 1 case; and pruritus, 3 cases.

Age Incidence

Decade ...	1st	2nd	3rd	4th	5th	6th	7th	8th
No. of cases ...	16	35	61	38	27	15	7	2

Average duration before treatment—11 months.

Duration after Treatment, by Decades

Years to ...	1	2	3	4	5	6	7	8	9	10	11	12
LIVING :												
1st D. ...	1	5	3	2	—	—	—	—	—	—	—	—
2nd D. ...	1	2	8	6	3	2	1	2	1	—	—	1
3rd D. ...	3	3	12	13	5	6	3	2	—	1	—	1
4th D. ...	3	5	6	7	2	3	1	1	—	—	1	—
5th D. ...	—	1	2	2	1	4	1	3	2	—	1	1
6th D. ...	—	2	3	2	1	1	—	1	—	—	—	—
7th D. ...	—	—	1	1	1	—	—	—	—	—	—	—
8th D. ...	—	1	—	—	—	—	—	—	—	—	—	—
DEAD :												
1st D. ...	2	1	1	1	—	—	—	—	—	—	—	—
2nd D. ...	1	1	1	2	1	—	1	1	—	—	—	—
3rd D. ...	1	3	2	1	1	1	2	—	—	—	—	1
4th D. ...	—	2	—	1	1	2	1	—	1	—	—	—
5th D. ...	1	—	3	—	1	1	2	1	—	—	—	—
6th D. ...	1	2	1	1	—	—	—	—	—	—	—	—
7th D. ...	—	2	—	1	—	—	1	—	—	—	—	—
8th D. ...	—	—	—	—	—	—	1	—	—	—	—	—

It is worthy of note that 30 per cent. of all cases occur in the third decade, 19 per cent. in the fourth, and 17.5 per cent. in the second. The approximate duration percentages are:

LIVING—		DEAD—		COMBINED LIVING AND DEAD—	
To 2 years ...	18 %	To 2 years ...	34 %	To 2 years ...	26 %
2-5 " ...	54 %	2-5 " ...	36 %	2-5 " ...	45 %
5-12 " ...	27 %	5-12 " ...	30 %	5-12 " ...	28 %

The first period of 2 years is taken because the average duration of life is generally given as that time.

Treatment

General medical treatment is extremely important throughout the whole course of the disease. Arsenic, however, should not be given during or until six weeks after a course of irradiation. In certain cases the combination increases systemic disturbance.

Surgical removal of glands except for emergencies appears to be of no permanent value. This was done in nine cases of those under review, and the longest interval before recurrence was twelve months. In addition glands in the neighbourhood of the scar do not respond so well to irradiation, probably because of circulatory interference.

Ordinary x rays act well as long as the glands are localized and superficial. Cases so treated respond afterwards to deep radiations just as well as untreated cases. This appears to be invariably the case no matter what the disease treated.

Deep therapy is recommended because the response to treatment is much quicker, and by varying the voltage and filterage to suit the glands to be treated one can in a short time treat masses of glands no matter where situated. For superficial glands a voltage of 160 to 170 kV is sufficient, combined with aluminium filters or the equivalent of 5 to 6 mm. thickness. A depth dose of 60 per cent. of the skin erythema dose is usually enough. The spleen if palpable should receive a similar amount of irradiation. The first irradiation should usually cover all affected areas and may be spread over a week to a month as necessary. Any recrudescence should be treated at the earliest possible moment. The active focus can usually be found in persistent pyrexia. In this way, after the initial long treatment, patients are as a rule able to carry on their ordinary activities and duties with nothing but an occasional single irradiation to interfere. Periodic inspection of patients cannot be too strongly emphasized.

Summary

While in no sense of the word can deep therapy be considered a cure of the disease, yet it unquestionably prolongs life and often restores the patient to a more or less normal active life in a very short period of time. With regular observation and treatment when necessary there is on the average a three to one hope of living for two to five years and a one to three hope of living for five to twelve years or longer.

In the acute fulminating type to which the young are especially susceptible the patient is usually overwhelmed before treatment can have any effect. The most favourable age incidence is the third decade of life, the least the first.

M. Dulcine (*Rev. de Méd.*, May, 1936, p. 272) accepts the view that the acute rheumatic attack is usually an example of allergy in a hypersensitized organism, and is associated with increase in the blood proteins and a characteristic modification of their distribution. In seven cases he has had good results from blood transfusions, which induce a colloidoclastic shock cutting short the allergic reaction: after an exacerbation (during the first 24-48 hours) with increase of fibrinogen the blood proteins diminish as the acute symptoms subside. The amount given was 100 to 250 c.cm. Dulcine points out that intravenous injections of sodium salicylate have a brief effect and are toxic if repeated. He has sought to combine the two treatments by injecting 50 to 150 c.cm. of blood containing 10 to 20 c.cm. of 10 per cent. sodium salicylate: such mixtures do not coagulate for one to four hours. Four patients, ill with acute rheumatism for three to four days and previously untreated, responded excellently. Nine patients who had proved refractory to domiciliary salicylate treatment improved after repetitions of the injections. It is not claimed that a good cardiac prognosis is assured by this treatment.