Summary

A survey is made of 1,498 skin cases seen in the Royal Navy in wartime.

It is shown that five conditions cause the majority of skin casualties in the Navy. The treatment used for those five conditions in two and a half years of wartime dermatology is very briefly described. Emphasis is placed on the treatment of mycosis—for which chrysarobin is recommended—as those cases were unusually severe and numerous.

The difference between the civil practice of dermatology and dermatology in the Service is mentioned and the added difficulties of war conditions are noted.

A plea is made for greater economy and simplicity in the treatment of skin conditions.

I am indebted to Surg. Cmdr. Patrick for permission to publish this paper.

REFERENCES

- Andrews, G. C. (1938). *Diseases of the Skin*, 2nd ed., Saunders, Philadelphia.
Brain, R. T. (1941). *British Medical Journal*, 2, 492.
Carslaw, R. W., and Swenarton, J. A. (1941). *Ibid.*, 2, 225.
Conybeare, J. J. (1940). *Textbook of Medicine*, Livingstone, Edinburgh.
Ingram, J. (1942). *British Medical Journal*, 1, 54.
Vickers, H. R. (1940). *Med. Pr.*, 204, 316.

LIGATURE OF INNOMINATE ARTERY FOR RIGHT SUBCLAVIAN ANEURYSM: END-RESULT

BY

Sir W. I. de C. WHEELER, M.Ch.(Hon.),
F.A.C.S.(Hon.), F.R.C.S.I.

Temporary Surgeon Rear-Admiral

In the case of which the end-result is here recorded, the innominate artery was ligatured in Dublin in May, 1932, for right subclavian aneurysm. The patient died 8 years and 4 months later, in Sept., 1940, presumably from rupture of an aneurysmal sac. No details could be obtained. Death was sudden and unexpected.

Three previous cases have been reported from Dublin; these occurred in the days before aseptic surgery. Coppinger of the Mater Misericordiae Hospital was the first surgeon in Europe to tie successfully the innominate artery for subclavian aneurysm (1893). Sixteen months after operation "the aneurysm was represented only by a small movable and hard filbert-sized tumour." In this case the carotid artery was divided between two ligatures. Thomson of the Richmond Hospital lost a case from secondary haemorrhage on the forty-second day, and O'Grady of Mercer's Hospital reported a case in which the patient died of "apoplexy" on the day following operation. In this instance the carotid artery also was tied. Ligature of the innominate artery remains a rare procedure. Up to and including the year 1922 there were 57 cases on record with 19 recoveries (Ballance, 1921). Rundle (1937) adds 5 subsequent cases. I have been unable to obtain the figures for recent years, but, judging by the paucity of cases in the past, it may be assumed that the total number to date does not exceed the round figure of 70. It is not the purpose of this communication to discuss the merits or drawbacks of the various surgical procedures. Whatever operation is employed for aneurysm of the aorta or any of its main branches the life of the patient may be prolonged, but he remains in a condition of perpetual jeopardy, and seldom survives for many years. The longest survival period after ligature of the innominate artery which I could find in the records is 10 years (Smyth of New Orleans, quoted by Erichsen, 1895). After ligature of the subclavian and common carotid for innominate aneurysm a patient was alive 18 years after operation (Baldwin's case, mentioned by Rundle). I have had one case of abdominal aneurysm in which the patient lived for the same period after the introduction of Colt's wires. These cases are, however, the exception; the majority of "cures" and "successes" are recorded when only a few weeks or months have elapsed after operation. Guidance as to prognosis is difficult to obtain from published cases: exaggerated claims are made long before real

results could be estimated. Post-mortem specimens obtained shortly after operation are not convincing evidence of "cure" unless death can be attributed to a condition neither directly nor indirectly concerned with the aneurysm. Even when this can be proved, it must be remembered that most of the patients who survived for many years eventually died of a secondary dilatation of the artery or a recurrence of the original aneurysm. The fact is, operation is palliative only, although a few surprisingly good results are on record.

In the original report of the case under review it was pointed out that the ideal operation for subclavian aneurysm is proximal and distal ligature with excision of the sac. As there was an apparent "cure" after ligature of the innominate artery, a contemplated second-stage operation (i.e., an attempt to ligature the distal arteries and excise the sac) was abandoned.

History of the Case

The patient, approximately 35 years of age, was wounded in France in 1915. On examination in 1932 a portion of a bullet could be seen by x rays deep to the insertion of the right sternomastoid muscle. There was a pulsating swelling the size of a duck's egg above the right clavicle. The right recurrent laryngeal nerve was paralysed, but, apart from this, there was a striking absence of the more usual clinical signs. The radial pulse was not affected, the blood pressure was the same on both sides, there was no bruit, and expansile pulsation could not be detected. The Wassermann reaction was negative.

It was hoped that ligature of the subclavian artery behind the scalenus anticus muscle would be possible and that, later, distal ligature and excision of the sac could be accomplished. The clavicle was divided in two places so that the central portion with its pectoral attachments could be turned downwards on

FIG. 1.—Subclavian aneurysm. The position of the tumour and the line of incision are shown. X marks the position of the bullet.

FIG. 2.—Subclavian aneurysm treated by ligature of the innominate artery. A, Transversalis colli artery. B, External jugular vein. C, Suprascapular artery. D, Divided sternum and sterno-clavicular joint retracted upwards. E, Hook retractor just above attachment of first rib to sternum. F, Innominate artery. Inset shows ligatures applied proximal and distal to thyroidea ima branch.

the chest (Moynihan). The aneurysm in this manner was laid bare and the bullet removed. The external and internal jugular veins were found obstructed and distended. The suprascapular and transversalis colli arteries were seen lying transversely across the tumour. The scalenus anticus muscle, as such, had disappeared and the phrenic nerve was not located. The sac clearly extended to the bifurcation of the innominate artery, and in consequence proximal ligature of the subclavian artery was impossible.

There was ample exposure for exploration in detail, but ligature of the innominate artery required more room if rough handling of the sac was to be avoided. The portion of the manubrium sterni which is closely related to the sterno-clavicular joint was cleared back and front and divided with a chisel. There was no interference with the first costal cartilage. The divided portion of the sternum carrying the sterno-clavicular joint and the inner portion of the clavicle was retracted upwards and to the left. The innominate artery was now seen clearly in its entire length (2 inches). The veins were not visible, the pleura caused no embarrassment, and the nerves remained hidden. The thyroidea ima branch was present. Two No. 2 catgut ligatures were passed round the main artery distal to this small branch (Figs. 1 and 2). They were tied slowly and gently to avoid, if possible, rupture of the coats. Pulsation in the aneurysm ceased and the radial pulse disappeared. Each pulsation of the artery now had the appearance of a sledge-hammer blow on the point of occlusion. For safety a third ligature was placed nearer the aorta. The thyroidea ima branch was ligatured with fine silk.

The divided clavicle and portion of sternum were replaced, the former being held in position by sutures through drill-holes in the bone. In three days the radial pulse reappeared, and in a week it was of normal volume. Six weeks later some faint pulsation could be felt in a very small swelling at the site of the original sac. Four months after operation there was no pulsation. Six years later the case was examined by Mr. R. A. Stoney of Dublin. He kindly reported that the patient appeared quite well. A small lump could be felt, but there was no pulsation or thrill.

Comment

Ligature of the innominate artery is not a difficult operation provided the exposure is adequate. Exploration, and the clearing of the deep surface of the manubrium sterni, are greatly facilitated by turning down the middle portion of the clavicle. In most cases I think this should be the first major step in the operation.

If ligature of the innominate is seen to be necessary a portion of the sternum should be divided and retracted upwards with the inner end of the clavicle. This can be accomplished without division of the first costal cartilage.

The figures are reproduced by kind permission of Messrs. John Wright & Sons, Ltd., from the *Medical Annual* for 1933, p. 73.

BIBLIOGRAPHY

- Ballance, Sir Charles (1921). *Brit. J. Surg.*, **9**, 438.
Erichsen, Sir J. E. (1895). *Science and Art of Surgery*, 10th ed., **2**, 190, London.
Rundle, Frank (1937). *Brit. J. Surg.*, **25**, 172.
Wheeler, Sir W. I. de C. (1933). *Surg. Gynec. Obstet.*, **56**, 257; *Med. Annual*, 1928, 1933, 1934.

CEREBROSPINAL FEVER

A REVIEW OF 500 CASES TREATED BY CHEMOTHERAPY WITHOUT INTRATHECAL SERUM

BY

G. EMRYS HARRIES, M.B.Lond., D.P.H.

Medical Superintendent, City Isolation Hospital, Canton, Cardiff; Lecturer in Infectious Diseases, Welsh National School of Medicine

For the purpose of comparison of the results of the various forms of treatment Table I gives the case-mortality figures for cerebrospinal fever patients admitted to this hospital during the last 10 years.

TABLE I

	Intrathecal Serum					Sulphanilamide and Intrathecal Serum	Sulphapyridine and Intrathecal Serum	Sulphapyridine or Sulphathiazole without Intrathecal Serum		
	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942
Cases ..	2	4	5	15	14	15	53	322	158	59*
Deaths ..	2	1	3	5	6	2	11	29	13	3
% ..	100.0	25.0	60.0	33.33	42.87	13.33	20.75	9.03	8.22	5.1

* Only first 20 cases (1 death) are included in the present series.

Within a period of two years and two months (Jan., 1940, to Feb., 1942) 500 patients admitted to the Cardiff City Isolation Hospital suffering from cerebrospinal fever were treated by chemotherapy without intrathecal antimeningococcal serum. As this is one of the largest series of cases of cerebrospinal fever ever so treated, a brief analysis, together with a few observations, may be of general interest. The ages ranged from an infant of 6 weeks, who made a complete recovery (examined 12 months after discharge), to a fatal case in a person aged 70 years. All cases of cerebrospinal fever which were admitted during the period are included, even those that were moribund and died within a few minutes of admission. The total number of deaths was 43, furnishing a gross mortality rate for the whole series of 8.6%.

With a disease such as cerebrospinal fever, which has a fulminating form that often kills on the first day, a totally erroneous case-mortality rate is obtained if cases that end fatally within 24 hours of admission are excluded. Were such a procedure adopted in this series the case-mortality rate would have been recorded as only 4.8%.

Age and Sex Distribution

Table II gives the sex distribution and case-mortality rates of the various age groups.

TABLE II

Age Group	Males			Females			Total Cases		
	No.	Deaths	%	No.	Deaths	%	No.	Deaths	%
0-3 months	—	—	—	1	—	—	1	—	—
3-6 "	6	2	33.3	7	2	28.6	13	4	30.8
6-12 "	16	1	6.2	11	1	9.1	27	2	7.4
1-5 years	62	4	6.4	53	3	5.6	115	7	6.1
5-10 "	27	1	3.7	29	3	10.3	56	4	7.1
10-15 "	27	2	7.4	24	—	—	51	2	3.9
15-20 "	50	—	—	21	—	—	71	—	—
20-25 "	22	—	—	11	1	9.1	33	1	3.0
25-30 "	19	1	5.3	5	—	—	24	1	4.2
30-35 "	20	2	10.0	21	3	14.3	41	5	12.2
35-40 "	10	1	10.0	6	—	—	16	1	6.2
40-45 "	10	3	30.0	7	2	28.6	17	5	29.4
45-50 "	5	1	20.0	5	—	—	10	1	10.0
50-55 "	4	—	—	8	2	25.0	12	2	16.6
55-60 "	5	2	40.0	—	—	—	5	2	40.0
60-65 "	4	2	50.0	—	—	—	4	2	50.0
65-70 "	2	2	100.0	1	1	100.0	3	3	100.0
70-75 "	—	—	—	1	1	100.0	1	1	100.0
All Ages ..	289	24	8.3	211	19	9.0	500	43	8.6

It is noteworthy that in the favourable age group 10 to 30 years there were 179 cases with but 4 deaths, giving a case-mortality rate of only 2.2%. In the subgroup 15 to 25 years there were 104 cases with but 1 death—i.e., a case mortality of even less than 1%; whereas among four patients of over 65 years there was no instance of recovery. From this will be seen the importance of furnishing the age distribution for any case-mortality figures for cerebrospinal fever. There were 44 non-civilians in this series, all of whom recovered, probably on account of their general fitness, favourable age-grouping, and early admission to hospital for treatment.

Proposed Classification

From my experience of cerebrospinal fever I believe the following classification covers all types of cases.

1. *The Meningococcal Septicaemic Type.*—(a) Acute, fulminating, exhibiting the Waterhouse-Friderichsen syndrome with adrenal haemorrhages, purpuric eruptions, pallor, and collapse; such patients frequently die before development of meningitis. (b) Chronic meningococcaemia with intermittent periods of pyrexia, usually petechiae and arthritis, occasionally lesions resembling erythema nodosum, and rarely maculopapular eruptions. This type of case may recover spontaneously or proceed to meningitic involvement unless adequately treated with chemotherapy.

2. *The Meningitic Type.*—(a) Acute; (b) subacute; (c) chronic (including the post-basis variety of Gee and Barlow in infants).

3. *The Encephalitic Type.*—Though every case of meningitis is essentially one of meningo-cortico-encephalitis, cases undoubtedly occur, fortunately rare, in which lesions are found deep in the nervous tissue. In fact, at necropsy on one of my cases meningococci could be demonstrated in the internal capsule. These cases are difficult of clinical recognition, but the