SOME COMPLICATIONS OF TEMPORAL ARTERITIS

BY

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The first clear description of the condition known as temporal arteritis appeared in the article on intracranial aneurysm by Schmidt (1930); he did not, however, recognize the condition present. The disease was first fully described by Horton, Magath, and Brown (1932). Since that time many cases have been recorded, and it has become clear that the term temporal arteritis is an inadequate one, for the disease consists of a widespread arteritis affecting predominantly the branches of the external and internal carotid vessels (Bénard, Rambert, and Pestel, 1949), but in addition there has been evidence of arteritis elsewhere (Cooke, Cloake, Govan, and Colbeck, 1946; Cardell and Hanley, 1951).

Nothing is known of the fundamental aetiology of the disease; that it is allied to polyarteritis nodosa seems likely, but the changes in the affected vessels are not identical: the condition runs a more benign course and tends to affect very much older subjects than the latter condition.

The general course of the illness follows a fairly constant pattern. The subjects are usually elderly—average age 65 (Harrison, 1948)—and men and women are affected in approximately equal numbers. The onset is often insidious, with increasing malaise, mild fever, and pain in the head of variable intensity. When this pain is severe the slightest contact with the scalp at the site of pain may be unbearable, brushing or combing the hair may be very painful, and there may be pain on moving the jaw (Hoyt, Perera, and Kauvar, 1941; Bénard *et al.*, 1949).

In an uncomplicated case the pain and tenderness gradually subside, usually over a period of many weeks, and the general constitutional disturbance likewise resolves. In a high proportion of cases, however, other manifestations appear, and it is often these complications that cause the patient first to seek medical advice. Ocular complications are common. Wagner (1946) found visual disturbance in 18 of 37 patients; Bruce (1950) reported ocular involvement in 34 of 84 patients. Unilateral or bilateral blindness is common and is usually of sudden onset. Isolated sector defects may appear in the field of vision of one eye; there may be ocular palsy. Vertigo has been reported (Cooke *et al.*, 1946), there may be affection of the skin along the course of the temporal vessels, and small multiple ulcerative lesions of the nasal and buccal mucous membranes have been observed by Schweitzer and de Yong (1949).

Laboratory tests give variable results: there is a fairly constant rise in the erythrocyte sedimentation rate, there may be a slight polymorphonuclear leucocytosis, and an eosinophilia has been found by Hoyt *et al.* (1941).

Biopsy of a section of thrombosed temporal artery confirms the diagnosis. The affected vessel shows marked intimal thickening; infiltration of the media with lymphocytes, plasma cells, and at times giant cells; fragmentation of the elastic lamina of the media; and a thrombus in the lumen of the vessel in a varying state of organization and recanalization.

A description is here given of nine patients who suffered from temporal arteritis. It is of interest that all were country dwellers—an observation also made by Horton *et al.* (1932) and by Cohen and Harrison (1948).

Case 1

A woman aged 78, while recovering from a severe exacerbation of arthritis of the hips, wrists, and fingers in January, 1951, had intense temporal headache associated with intermittent fever to 102° F. (38.9° C.), a constant tachycardia of 100–120, anorexia, and loss of weight. The intensity of the pain increased, and the mere contact of any part of the head with the pillow became unbearable. Brushing the hair was impossible. She was at times mildly confused and delirious. Four weeks after the onset she awoke to find that vision was misty in each eye and within 48 hours all sight was lost. Examination at this time showed a considerable degree of emaciation. The whole scalp was acutely tender, and in all areas of the scalp thrombosed vessels could be felt. Both facial arteries were tender and non-pulsatile. Vision was lost in each eye; the pupils were of medium size and inactive to light. The optic disks were pale and the retinal arteries narrow and very tortuous. The peripheral vessels were sclerotic and the blood pressure was 150/70. There was widespread osteoarthritis, affecting the hands in particular.

One month later the pain and constitutional symptoms were subsiding. She had, however, developed an extensive area of necrosis of the scalp in the right parietal region near the vertex (see illustration). There was necrosis of the nasal septum, with a large perforation of the cartilage and offensive discharge.

The scalp healed very slowly over a period of four months, and the nasal discharge ceased. Nine months from the onset the patient was well although quite blind.

Photograph of Case 1 showing area of necrosis of scalp.

Comment.—The extent of the involvement of the scalp vessels seems to have been of a quite unusual severity—sufficient for a time to deprive one area of the scalp of an adequate blood supply.

Case 2

A woman aged 72 complained in July, 1948, of severe right-sided headaches and tenderness of the temporal region. Her past health had been good apart from severe arthritis of the spine and fingers. The onset of symptoms was gradual, with mild fever to 100° F. (37.8° C.) at times, and a tachycardia of about 120. When seen by me seven weeks from the onset she was pale, ill, and wasted. There was moderate tenderness of the right side of the scalp, the temporal vessels being hard, tender, tortuous, and non-pulsatile. The blood pressure was 220/120.

Salicylates gave some relief of pain, and the tenderness subsided in about one month. Three months later, while doing housework, she suddenly found that sight had failed

in the left eye. When seen one week later the left optic disk was pale, there was no perception of light, and the pupil did not react to direct illumination. The eye has since remained blind.

Comment.—The long interval between the onset of symptoms and the occurrence of blindness is by no means unusual. The part played by temporal arteritis may not at first be apparent if the symptoms have been slight.

Case 3

A man aged 66 was seen in August, 1949, complaining of intense left- and right-sided head pain of two week's duration, and giddiness and nausea of two days' duration. The onset of the latter symptoms had been sudden on rising in the morning. The giddiness was almost constant, with a feeling of being pulled to the left side, and was associated with a ringing tinnitus in the left ear.

Examination showed extensive thrombosis of the temporal vessels, mainly on the left side, with great tenderness. There was a coarse nystagmus to the left, and a moderate degree of nerve deafness on that side. The whole of the left side of the face did not move as well as the right. A blood count showed 26% of eosinophils in a total of 11,000 white corpuscles. The E.S.R. was 60 mm. in the first hour. A segment of the left temporal artery was removed under local analgesia with considerable resultant relief of pain. Section of the vessel showed typical changes of temporal arteritis.

The vertigo lasted about two weeks, at the end of which time there was considerable improvement. When he was seen six months later there was a mild degree of nerve deafness on the left side. There were no other symptoms.

Case 4

A man aged 78 was first seen in May, 1950, complaining of bitemporal pain and pain in the neck for two weeks, and loss of vision in the right eye for one week and in the left eye for two days. The onset had been gradual, with soreness in the temporal and occipital regions. After one week he noticed a dark patch in front of the right eye, and on waking next morning the eye was completely blind. Five days later he awoke to find the left eye blind. There had been no constitutional disturbance.

On examination the temporal and occipital vessels were tender and tortuous, but pulsatile. There was no perception of light in either eye, and the pupils were inactive. The right optic disk was pale. The blood pressure was 170/100. No other symptoms or signs developed, and he was well but blind five months later.

Case 5

A woman aged 69 started to complain in February, 1952, of severe pain on the right side of the head, pain on moving the jaw, and a recurrence of arthritis of the fingers, hips, and knees. Her symptoms gradually increased, and after four weeks she complained of double vision; this was followed by complete closure of the right eyelid.

On examination there was extensive bilateral thrombosis of the temporal vessels, the skin overlying the vessels was red and shiny, and the vessels were extremely tender. Tenderness was present over both temporo-mandibular joints. The temperature was 101° F. (38.3° C.) and pulse 110. There was much sweating. On the right side was a complete paralysis of the third cranial nerve. A blood count was normal, but the E.S.R. was raised to 40 mm. in the first hour.

Salicylates relieved the pain a little, and this subsided during the next six weeks. When seen in May, 1952, there was a partial right third-nerve paralysis, with dilated fixed pupil, incomplete ptosis, and defective adduction of the globe.

Case 6

A man aged 82 complained in March, 1952, of headache and soreness of the scalp which interfered with his sleep

owing to the pressure of the pillow. There was, however, no major constitutional upset and he continued to lead an active life. Six weeks later, while weeding his garden, he noticed that the left eye was blurred, and very shortly afterwards the right eye was likewise affected. Within 24 hours all vision had been lost. When seen one week later there was bilateral optic atrophy with no perception of light. The pupils were large and inactive. The temporal vessels on both sides were thrombosed and tortuous, but were not tender. The blood pressure was 190/100. A blood film was normal. Two months later the patient was well but blind.

Case 7

A woman aged 73 was seen in May, 1952. Three months earlier she started to complain of "fibrositis" all over her head. After a week or two she noticed numerous tender "knobs" in the temporal regions and at the back of her head. The pain and tenderness persisted for about six weeks. Three weeks before attending hospital she noticed an appearance as if a spider's web were before the left eye; one week later, on waking, she could only see downwards and to the left with the left eye.

Examination showed numerous nodular thromboses in the temporal and occipital vessels, some of which were still somewhat tender. The left optic disk was pale. There was perception of hand movements with the left eye in the lower temporal field only. The left pupil reacted sluggishly to direct illumination. A blood count showed a mild normocytic anaemia with a leucocytosis of 11,500 per c.mm. The differential count was normal. The E.S.R. was 99 mm. in the first hour.

One month later her vision had improved to 6/60 with the left eye, and the density of the visual field disturbance was diminished.

Comment.—The incompleteness of the visual loss and its tendency to recover suggests, in the absence of obvious retinal change, that there was an incomplete or transitory occlusion of the central retinal artery.

Case 8

A man aged 72 developed in September, 1951, pain in the head of diffuse nature with malaise, anorexia, and slight fever. The pain increased in severity, and after two weeks he awoke to find that he was blind.

Examination showed tender thrombosed temporal vessels with some reddening of the overlying skin. There was no perception of light in either eye, and the pupils were dilated and fixed. The optic disks were normal. The blood pressure was 200/110. The constitutional and local symptoms subsided rapidly, leaving the patient permanently blind.

Case 9

This patient, a woman aged 78, was one of nine further patients suffering from temporal arteritis, in none of whom was there any central nervous complication. The history and findings in her case were typical of this group. She first complained of headache in the occipital and left temporal region in November, 1951. This symptom increased, and after 8 to 10 weeks there was complete loss of appetite. The pain was now severe and prevented sleep. A moderate bilateral conjunctivitis had developed. Her temperature was 100° F. (37.8° C.) and pulse 110. There was tenderness over the left temporal vessels, which were thrombosed and tortuous. Any contact or draught on the left side of the head was resented. The blood pressure was 220/120. A blood count showed: haemoglobin, 80%; white cells, 15,800 per c.mm. (87% polymorphs); E.S.R., 54 mm. in the first hour.

There was a quite rapid symptomatic and clinical improvement following the administration of mist. sod. salicyl. (N.F.). After four weeks the scalp tenderness was barely perceptible and appetite was returning. There was no fever.

Six weeks later her weight was increasing and pulsation could be felt in the previously occluded vessels.

Summary

The clinical course of nine patients suffering from temporal arteritis is described. The following points emerge: the patients are without exception elderly, often of arthritic disposition, and arteriosclerotic; the disease runs a protracted though benign course but may leave permanent damage to vision; temporal arteritis is a not uncommon cause of sudden visual failure in the elderly, and the underlying disease may be overlooked if the symptoms have not been severe or if they have occurred some weeks or months before; salicylates are of value, at least in the relief of symptoms. The ischaemia of the scalp may be sufficient to result in necrosis.

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DIETARY "FIBRE"* AND PREGNANCY TOXAEMIA†

BY

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Amongst the numerous hypotheses which have been put forward from time to time to account for the cause of pregnancy toxæmia is the "dietary" hypothesis. The most consistent advocates of this have been Theobald in the United Kingdom and Dieckmann in the United States.

Despite the fact that a consideration of the possible dietary factors has so far been unproductive of conclusions on the role of any one factor in the cause of the disease, the evidence indicates that a relationship of diet with toxæmia exists. The problem is to examine all the facts where the relationship seems to exist and try to fit them into a unified pattern.

A study of the literature reveals observations which apparently cannot be reconciled. For example, Ebbs, Tisdall, and Scott (1941) found that toxæmia and the incidence of stillbirth and neonatal deaths are more common in women with "poor" diets than in those with "good" diets or in those with poor diets supplemented throughout pregnancy with oranges, tomato pulp, wheat germ, milk, and vitamin D. How are these findings to be reconciled with the observation that toxæmia is very rare in some native populations living on so-called poor diets, and also with the findings that

the incidence of eclampsia fell in Germany during the last two years of the 1914-18 war, and in the Netherlands during the 1939-45 war—that is, in periods of relative famine?

Diet and Toxaemia in Sydney

In a review of the monthly incidence of eclampsia in two hospitals in Sydney during the period 1938-45 I showed that eclampsia was more common from May to September (winter), when fruit and vegetables were scarce, than it was from November to March (summer) (Hipsley, 1949). In 1942, when there was a severe shortage of vegetables, the incidence of eclampsia was comparatively high, and the combined stillbirth and neonatal deaths reached record heights. The notion that this shortage may have contributed to the increased morbidity was strengthened by experience in New Guinea, where it was noted that native diets are predominantly vegetarian and that toxæmia is very rare. These observations suggested that there may have been a dietary factor which operated in the diet of peasant vegetarian communities and in the good diets of civilized communities but was apparently absent from poor diets of civilized communities.

Eclampsia in the Fiji Islands

In 1950 Bell and Wills noted a pronounced racial difference in the incidence of eclampsia between the indigenous Fijians and the Indians living in Fiji. In the three years 1947-9 there were 18 cases of eclampsia in 1,106 Indian confinements, while there were no cases in the same period in 717 confinements of Fijians. In 1949 there were 27 cases of pre-eclampsia in 416 Indian confinements, but no cases in 266 Fijian confinements.

The indigenous Fijians and the Indians living in the Fiji Islands are each a well-defined racial group differing widely in social, religious, and dietary habits. Such a situation seemed to offer a unique opportunity for the study of the dietary background of the disease. The staple food of the Fijian is a starchy fruit vegetable of which relatively large quantities are eaten, together with bananas, coconut, papaw, leafy greens, and small quantities of meat, fish, and crabs. The important foodstuffs in the Indian diet are flour (sharps), white rice, coconut oil, ghee, sugar, with small quantities of dhal, meat, milk, vegetables, and fruit. The bulk of this diet consists of the refined foodstuffs, white rice and flour (sharps).

A comparison of the diets of the two races shows that they differ greatly in "fibre" content (see Table I). This observation, together with the Sydney observations previ-

TABLE I.—Fibre Content of Diets of Indians Living in Fiji Compared with New Guinea Diets

Indian*				New Guinea†			
Foodstuff	g./Day/Head	Fibre‡ g./Day	Calories	Foodstuff	g./Day/Head	Fibre‡ g./Day	Calories
Bread	7.8	V.L.		Taro	106	1.80	
Sharps (flour)	317	V.L.		Sweet potato	170	1.70	
Rice, white	208.4	V.L.		Bananas	67	0.67	
Dhal	45.7	1.84		Yams	680	6.80	
Ghee	24.2	0		Pumpkin	17	0.17	
Coconut oil	35	0		Tapioca	17	0	
Potatoes	73.8	0.74		Brown rice	2.8	0.03	
Onions	3	0.06		Coconuts	39	1.24	
Sugar	54.9	0		Green leaves	2.8	0.45	
Milk	68	0		Papaw	28	0.28	
Vegetables and fruit	Small amount	V.L.		Fish	120	0	
Meat and fish	9.6	0					
Butter	3.7	0					
Total		>2.64	2,896	Total		13.14	1,600
		>0.9	1,000			8.2	1,000

* Bell and Wills, 1950.

† No quantitative assessment of Fijian diets is available. Quantitative data for Kavitaria (a village in the Trobriand Islands) have been used (see Report on the New Guinea Nutrition Survey Expedition, 1947. Department of Territories, Commonwealth of Australia, 1950.)

‡ The calculations for the fibre content of diets have been made using tables published by Nicholls (1951).
 V.L. = Very little.

*The term "fibre" as used in this paper includes lignin, cellulose, and the hemicelluloses.

†Some of this work was carried out during the tenure of a World Health Organization Fellowship in 1952, but the statements made and the opinions expressed are not necessarily those of the Organization.