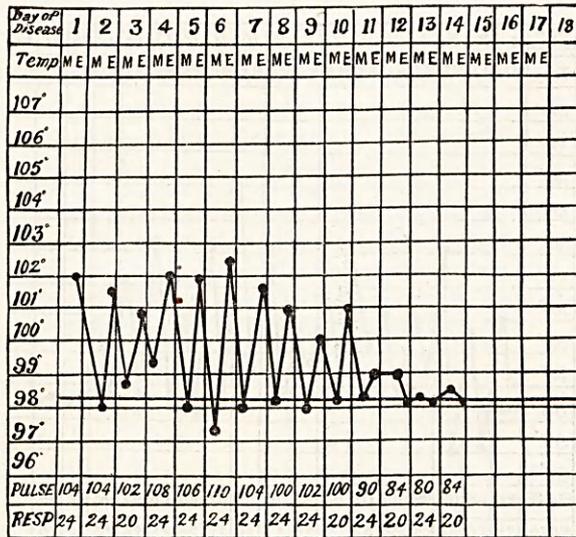


The blood culture and Widal reaction gave negative results. The Weil-Felix reaction gave a positive agglutination at 1 in 25, but not at higher dilutions.

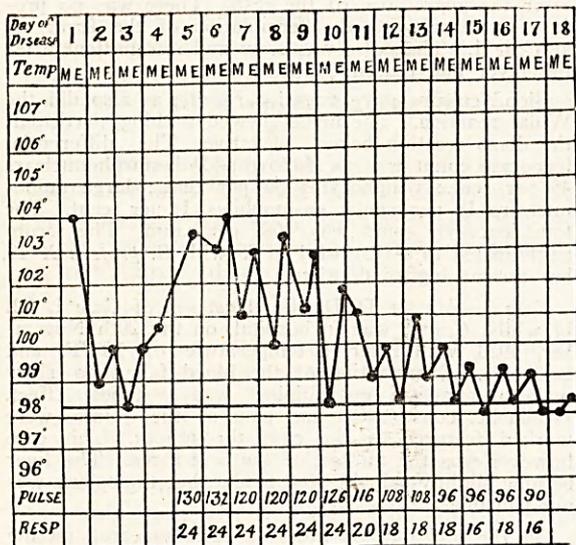
**Case III.**



Recapitulating these cases, that of Case 1, the father, was the worst in the severity of the attack and the persistence of the rash. Case 2 was milder, and Case 3 the mildest of the three. The rash lasted over two months in Case 1, nearly five weeks in Case 2, and only three weeks in Case 3.

Case 4.—Mrs. J. B., European, aged 28 years, in India only since February 1922, had been in Pachmari

**Case IV.**



from April to October 1923, and had given birth to a healthy child in September of the same year. She had a dog full of ticks, and about the end of September her husband noticed a tick on his wife's cheek and removed it, but it was not known how long the tick had been there.

On the 14th November 1923 she had fever with rigor and headache. The next day her left knee was stiff

and after this all the joints of the body commenced to ache. On the 16th she noticed a few red spots resembling mosquito bites on her face and the eyes were red. I first saw her on my return from camp on the 18th when I found her walking about the house, with a flushed face, nursing her baby, but with a temperature of 104°F. and a full and bounding pulse of 120. Both husband and wife had suffered from malaria when in Pachmari. Blood examination shewed no malarial parasites and the fever did not yield to quinine administration.

Up to the 8th day of illness there were only a few spots on the palms of the hands and soles of the feet and on the face. Later the rash became very abundant on the face and extremities, but was here less bright and marked than on the trunk. There was considerable sweating at nights, but no restlessness or delirium. The liver was normal but the spleen a little enlarged.

Blood culture was with negative results, also the Widal reaction. Several blood examinations failed to shew malarial parasites. The Weil-Felix reaction was also negative.

She lived in a military bungalow in part of the civil station of Nagpur, about four miles away from the home of Cases 1 to 3; but, curiously enough, the last three cases all occurred in the same month, November, 1923. The two families were complete strangers to one another and did not come into contact in any way.

In none of the above four cases were lice found on the persons of the patients or on any of the inmates of the houses from which the patients came.

**PYORRHŒA ALVEOLARIS.**

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PYORRHŒA ALVEOLARIS is of great importance because—

- (1) There is no other dental disease that interests the medical man more than pyorrhœa.
- (2) It is so prevalent that he comes across it almost every day of his life.
- (3) There are very few diseases (dental, medical or surgical) that are so disastrous to the general health.
- (4) Yet there is no other disease of which medical men know less than of pyorrhœa.

Causes—1. Sluggishness of the end-organ character of the blood circulation in the alveolus.

2. Accumulation of tartar which irritates, inflames, and gradually destroys the gum tissue.

3. Accumulation of food-stuffs under the free margin of the tartar and of the gum tissue which is being destroyed by the tartar.

The above causes predispose, i.e., prepare the part for the advent of the disease, and

4. The infection by bacterial accumulation ultimately starts it.

Pathology.—If I were asked to describe briefly the nature of this disease I would say that "pyorrhœa is a filth disease," i.e., a disease excited and

kept up by the accumulation of filth. To understand this well the reader must appreciate the two kinds of lesions of the body. They are *sthenic* and *asthenic*.

*Sthenic or inflammatory lesions* are those wherein Nature can make active efforts to resist invasion or to repair injury. This is only possible when the tissues possess more or less normal vitality, i.e., have a good blood supply.

*Asthenic lesions* occur in parts where the blood circulation is low (end-organ character of the circulation) and the nutrition or metabolism is below par. This may be due to local disturbance or may be general and due to some constitutional ailment.

Pyorrhœa alveolaris is an asthenic lesion for it occurs in the part (socket of the alveolus) which is scantily supplied with arteries and badly drained by veins, i.e., in a part that is greatly susceptible to *venous engorgement*, or in other words to *regional debility*. To such low nutritive conditions, further depressed or not by constitutional disturbances, add some irritation in the form of tartar, or badly done filling, crown or denture, and bacterial infection and pyorrhœa alveolaris is the result.

To enable the reader to understand the pathological conditions described above I would ask the reader to imagine a drainage system which is badly devised and inefficient to ensure the easy drainage of the refuse of a city. It is easy to see how readily such a system can be upset by the slightest disturbance. Then imagine that somewhere in that system there occurs a block of some nature, at first only slightly obstructing the easy flow of the refuse, but ultimately entirely stopping the flow. Then add to this stagnant condition some infection (which is always there in the refuse) by pathogenic bacteria, and he can easily see that an epidemic will readily result. This is exactly what happens in pyorrhœa alveolaris.

*Signs and symptoms*—1. The tags of gums in the spaces between the teeth get congested.

2. The congestion spreads to the whole margin of the gum.

3. The gums bleed to the touch.

4. The gums are slightly swollen and bluish in colour.

5. Gradual recession of the gums by the destruction of the margin.

6. Formation of the pockets by destruction of bone.

7. Oozing of pus at the gum margin.

8. The roots get exposed as a result of the destruction of the gums and bone.

9. Foetid discharge from the sockets.

10. Foul offensive breath.

11. Gradual looseness and falling out of the teeth as the result of destruction of the alveolus.

12. Congestion of the whole mucous membrane of the mouth.

13. Recurring hæmorrhage, staining the pillow at night.

14. General malaise and debility as a result of the absorption of sepsis from the mouth.

A very notable but at the same time unfortunate feature is the marked absence of pain in these cases. Pain is occasionally present and may then be due to the rheumatic diathesis or to neuralgia caused by septic infection from the mouth.

#### *Treatment.*

(1) Prophylactic or preventive. (2) Remedial.

#### *Prophylactic treatment.*

In view of the pathology described above, the preventive treatment must naturally aim at—

1. Maintaining the circulation of the alveolus at its normal.

2. Prevention of the access of any irritation or exciting cause in the form of food-stuff, tartar, or badly done fillings, crowns or dentures.

3. Prevention of the entrance of any infection in the form of accumulation of germs.

The first object can be achieved by inculcating the habit of using such hard food as will exercise the teeth by calling forth the action of mastication. This will encourage the easy flow of blood to the part. This can further be achieved by regular *massage* of the gums twice a day.

The second and third objects can be realised by

1. Eating such hard fibrous food as will not stick to the teeth.

2. Finishing each meal with fruits such as oranges, sweet lemons or even sugar-cane.

3. Cleaning the mouth and teeth twice a day by means of a hard tooth brush, fairly gritty chalk-powder, and clean water.

Given a healthy mouth to start with, the above treatment carried out twice a day will be enough to keep any mouth clean and free from pyorrhœa or any disease of the mouth.

In case of the presence of any unhealthy condition of the mouth such as the presence of tartar, badly done fillings or crowns, congestion of the gums, etc., the tartar must be immediately removed and the congestion of the gums treated by the application of iodine or myrrh. Then the patient should be instructed to keep the mouth clean and to massage the gums.

#### *Remedial treatment.*

1. Local treatment.

2. General treatment, i.e., of the constitutional troubles underlying it.

*Local treatment* is on the same lines as a drainage engineer would adopt in the case of an epidemic due to the obstruction in the drains. As he would first remove the obstruction in the drain,

the dentist must also remove the obstruction or irritation, which may be tartar, badly done fillings, crowns, dentures or accumulation of food-stuff. Then, as the engineer after removing the obstruction would first flush the drains and then disinfect them, the dentist must also flush the parts (sockets of the alveolus) with some antiseptic fluid such as hydrogen peroxide, and then disinfect them by drugs such as silver nitrate, zinc chloride, iodine, etc. Then, after disinfection, as the engineer would attempt to keep the drains clear to ensure the easy flow of the refuse, so must also the dentist assure the normal flow of blood to the part by getting the patient to clean the mouth well and to massage the gums every day.

*General treatment* consists of treating the constitutional troubles that, by adversely affecting the circulation in the alveolus, predispose it to the attack of pyorrhœa alveolaris. It is always given as supplementary to the local treatment which is *par excellence* the only treatment of this disease. Sometimes when pyorrhœa is severe and of long standing, it may be associated with general symptoms as its result. Vaccine-therapy treatment as an auxiliary to the local treatment may prove very useful. It then helps by building up the body resistance by directly attacking and subduing the toxins circulating in the body. In case of the local treatment failing to produce good results in a reasonable time, or in case of the general health being badly undermined by septic absorption from the mouth, the radical treatment, i.e., extraction of all the teeth may be unhesitatingly advised. Extraction of all the teeth is the best and surest cure for this disease, and so is very often light-heartedly followed by some dentists. But such treatment is hardly fair to the patients, unless they have previously refused to try more conservative treatment, or unless this has been conscientiously tried and has failed; or unless it is too late in the day to try any such treatment.

Of late several ingenious treatments have been tried and are now given up as wanting. They are:—

1. Vaccine therapy.
2. Ionisation.
3. Emetine hydrochloride injections.
4. Mercury succinamide injections.
5. High frequency currents.
6. Ultra-violet rays.

Considering its pathology, that pyorrhœa is in an asthenic lesion occurring in a part with natural *regional debility* (end-organ circulation), with local irritation and infection as predisposing and exciting causes, I am not surprised that these treatments have failed. At best they can only serve as auxiliary to the local treatment, which if well carried out, will never need the help of any of these. To my mind no treatment that takes into account infection only, and ignores the inherent *regional debility* or *venous congestion* in the part

(as all these treatments do) can ever succeed in curing this disease. Considerations that should guide one's decision in treatment are—

1. Whether or not the teeth can be saved.
2. Whether the general condition of the patient is such as can stand the conservative treatment which is essentially a long treatment, or whether it warrants immediate extraction of all the teeth. Conservative treatment is indicated in cases where the teeth can be saved and the general health is good or even fair. It is contra-indicated where the general health is bad, even though the teeth may be savable.

*Effects of pyorrhœa on the general system.*—Many of the diseases that the human body is prone to can be directly or indirectly traced to pyorrhœa alveolaris. The alimentary canal because of its continuity and contiguity with the mouth, easily suffers the most from this disease. All other systems are also affected either directly through the blood current (direct infection) or indirectly through the digestive system by absorption of toxins into the general system, and diseases like arthritis, nephritis, septicæmia and pernicious anæmia may result. As all the systems of the body can be affected by pyorrhœa: medical men may be advised to remember this scourge as a probable cause of any trouble in any system of the body that they may be called upon to treat. It would be in their interest and in the interest of their patients that they should begin the examination with the patient's mouth, for more often than not oral sepsis is the cause of the trouble. Failing to do so, unknown to them or unnoticed by them, they may allow their patients to retain such sepsis as they would not allow to remain for a minute were it found in any other part of the body, and to be constantly poisoned by it. It is often argued by medical men that the effects of oral sepsis on the general constitution are very much exaggerated, and that its ill effects are indeed few, when compared with its wide prevalence. But the mouth is the gateway of the body and according to competent authorities, it is through its portals that most (80 per cent.) of sepsis enters the body, and its ill effects are indeed very common and very severe. To those medical men who doubt the evil effects of oral sepsis on the general constitution, I may suggest that they remove such sepsis and note the effect of such removal on the conditions present. It is fortunate that such conditions are not more common than they are, and this is due to the considerable resisting power of the oral mucosa and to the antiseptic property of the saliva. It is indeed unfortunate that pyorrhœa is a painless process and that its septic effects go on steadily increasing in virulence without drawing attention to the seat of origin. Such is bound to be the case unless the medical profession realises that sepsis, especially oral sepsis, is the most important and the most frequent cause of medical diseases, and so realising it, make it a point to detect and remove it at an early stage.