Vincent's angina / by J.D. Rolleston.

THE BRITISH JOURNAL
OF
CHILDREN'S
DISEASES.

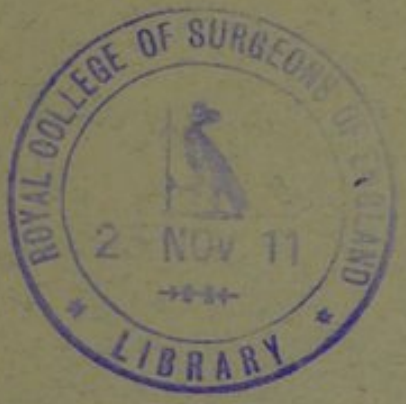
REPRINT

PRINTED AND PUBLISHED BY ADLARD & SON,
BARTHOLOMEW CLOSE, LONDON, E.C.

29

VINCENT'S ANGINA.

By J. D. ROLLESTON, M.D.,
Assistant Medical Officer, Grove Fever Hospital, London.



Reprinted from 'The British Journal of Children's Diseases,' July, 1910.

VINCENT'S ANGINA.

By J. D. Rolleston, M.D.,
Assistant Medical Officer, Grove Fever Hospital, London.

The present paper is based on the study of 32 cases of Vincent's angina observed at the Grove Hospital in the course of the last five years. Prior to April, 1905, when I first became familiar with this form of sore throat, I had seen several cases which on retrospective consideration were probably examples of this condition, but which I had not learnt to recognise as such. Many other observers have doubtless had a similar experience.

Definition.—Vincent's angina may be defined as a faucial lesion, usually of unilateral distribution, characterised by deep ulceration of the tonsil and adjacent structures, a peculiar fœtor and enlargement of the corresponding lymph-glands, and ætiologically associated with the symbiosis of two organisms,* a fusiform bacillus and a spirillum, described by Vincent in 1896 as present in hospital gangrene, and again in 1898 in the lesion to which his name has been given.

Frequency.—Compared with other forms of sore throat Vincent's angina is uncommon. During the three years, 1905–1907, before and after which period it does not figure in the returns, 15,140 cases of diphtheria were admitted to the Metropolitan Asylums Board hospitals, as well as another 3047 cases certified as diphtheria, but diagnosed after admission as suffering from other diseases. Only 95 of the latter were diagnosed as Vincent's angina, the frequency of which is therefore 0·5 per cent. in all forms of sore throat and 3·1 per cent. in cases of non-diphtheritic angina. These figures probably

* The fusiform bacillus has been isolated in pure culture by several investigators. Mühlens alone has succeeded in cultivating the spirillum. For a full account of the bacteriology of Vincent's angina, A. Meyer's valuable monograph should be consulted. Repaci's paper may also be mentioned (*vide* references).

under-estimate its real frequency, as in 1905 only 3, in 1906, 4, and in 1907, 6 of the ten hospitals admitting acute cases of diphtheria returned the diagnosis of Vincent's angina in their statistics. Its slightly greater frequency at the Grove Hospital supports this view. During the quinquennium, 1905–1909, 3266 cases of diphtheria were admitted to this hospital, and another 610 were certified as diphtheria, but were found after admission to have other diseases, among which were 30 of the 32 cases which form the subject of this paper. The frequency of Vincent's angina at the Grove Hospital during a period of five years was therefore 0·9 per cent. in all cases of sore throat and 4·9 per cent. in non-diphtheritic angina.

Vincent himself found that it occurred in 2·2 per cent. of all cases of angina. It should be noted, however, that his patients, instead of being of all ages and sexes, like those admitted to the Asylums Board hospitals, were exclusively soldiers between the ages of 20 and 25 years. L. Martin, at the Hôpital Pasteur, met with it only in 2 out of 122 cases of non-diphtheritic angina. Marfan found it in 1 per cent. of all cases of angina admitted to the diphtheria block at the Hôpital des Enfants Malades. A. Meyer saw 30 cases in five years in Heymann's throat and ear deparment at Berlin among 15,000 cases of this speciality.

Age and sex.—The ages and sexes of the 32 patients are shown in the following table :

TABLE I.

Years.	Males.	Females.
0–2	0	0
2–3	2	1
3–4	3	2
4–5	4	2
5–6	2	4
6–7	0	2
7–8	0	3
8–9	0	0
9–10	2	0
10–11	0	0
11–12	0	1
12–13	0	2
14–15	1	0
16–17	1	0
	15	17

Thus 14 occurred in the first quinquennium, 13 in the second, 4 in the third, and 1 in the fourth. Fifteen were males and 17 females. Illustrative of its occurrence at the extremes of life are Athanasiu's case in a child aged 26 months, and Rudloff's in a man aged 81 years.

As the figures above testify, it is relatively rare in adults. An exception to this rule occurs in the case of soldiers, on whom Vincent's original observations were made, and medical students, among whom cases have recently been reported by Buhlig and Gordon. According to Vincent it shows a predilection for those working in the dissecting room.

Contagiosity.—It is a striking fact, at once illustrative of its rarity among adults and of its feeble contagiosity, that none of the staff at the Grove Hospital contracted the disease during these five years. This is all the more remarkable, as they are very liable to various forms of sore throat. Thus during this period 196 suffered from follicular tonsillitis and 19 from quinsy, and their susceptibility to infection is further shown by the fact that 40 developed scarlet fever and 37 diphtheria during the same period.

Although no instances of contagion have been furnished by the present series many such cases have been observed. The disease has been conveyed by kissing, or by the use of an infected pipe or glass (Vincent). In Royster's case a dentist was infected by his patient, and in cases recorded by Vincent and Costa the reverse occurred. Goldenburg mentions a family epidemic in which the father, mother, and two children were affected. In the parents the disease was slight, but in the children fairly severe. Small epidemics in children's homes have been reported by Cushing. Buhlig describes an outbreak among medical students who had a tobacco pouch in common, the string of which they fastened with their teeth, and Todd states that a pathologist, after examining throats in a lunatic asylum during an epidemic of Vincent's angina, caught the disease himself.

Seasonal incidence.—As is seen from Table II, the disease was commonest in the spring and rarest in the autumn.

Thus 7 occurred in the first quarter, 15 in the second, 4 in the third, and 6 in the fourth.

The experience of other observers is different. Eight of Meyer's 30 cases occurred in September, only 3 between September and March, and 21 between June and October. Reiche, on the other hand, found his cases were most frequent during the warm months.

§

TABLE II.—*Showing the Months in which the Cases were admitted.*

January	3 cases.
February	2 „
March	2 „
April	6 „
May	5 „
June	4 „
July	2 „
August	2 „
September	0 „
October	3 „
November	2 „
December	1 case.
	32

Previous health.—Some writers, including Vincent himself, have laid special stress on general ill-health and oral sepsis as predisposing causes. Others, such as Baron, Blackwood, Lavagna, and Reiche, with whose experience my own accords, found the disease equally frequent among those previously healthy. Carious teeth were doubtless present in most, if not all of my cases, but not to a greater extent than in other children, nor was the general condition below par. Nine had had no previous illness whatever, and 23 had had one or more of the acute exanthemata.

Clinical picture.—It is customary to distinguish two forms of Vincent's angina, an ulcerative and a membranous or diphtheroid, but in my experience the ulcerative is only a later stage of the diphtheroid. The slough which covers the ulcer may so closely simulate diphtheritic membrane, that even after considerable experience the condition may be regarded as diphtheria and treated accordingly, especially as the characteristic fœtor is often absent in the early stage. Thus 10 cases in which no diphtheria bacilli were subsequently found were diagnosed as diphtheria on admission, and received doses of antitoxin ranging from 4000 to 16,000 units. In some of these cases the faucial condition seemed to be benefited by serum treatment, probably through stimulation of local leucocytosis. No help in diagnosis can be gained from the history of the onset, the prodromal symptoms being those common to any angina. Thus in 28 there was a history of sore throat, in 11 of headache and vomiting, in 18 of swollen neck-glands, and in 7 of shivering. It is of special interest that nasal discharge, which is so frequent an

initial sign of diphtheria, occurred in 14 cases. In 9 it was present on admission, and in another 5 it had been noticed at the commencement of the disease, but had ceased before admission.

The resemblance to severe diphtheria is sometimes increased by the presence of faucial œdema, which was found in 5 cases. Adenitis, usually confined to one side, may be considerable, but I have never observed in Vincent's angina anything resembling the proconsular neck of toxic diphtheria. In every case the inflammation resolved completely. Suppurative adenitis, as Vincent has pointed out, is unknown.

The fœtor of Vincent's angina, though absolutely characteristic and quite distinct from that of malignant diphtheria, may mislead those who have had no experience of the former disease. Thus one case in which the odour was very pronounced was brought to hospital by the parents, without waiting for the ambulance, because the certifying practitioner had said that it was a severe case of diphtheria which should be removed to hospital at once.

In the great majority of cases Vincent's angina is a unilateral affection, or, if both sides of the fauces are involved, the lesions are predominant on one side. Thus in 12 cases the right, in 11 the left, and in 9 both sides were affected, but in 5 of the latter the lesions were predominant on the left and in 2 on the right.

In 20 cases the uvula was involved, in 8 cases the right and in 12 the left side being affected. Damage to this organ in the present series was never considerable, and complete regeneration of tissue always occurred. Cases, however, in which the whole uvula has been destroyed have been recorded by Auché and by Niedner. In none of my cases was the larynx attacked, as in those published by Arrowsmith, Bruce, and Reiche. Ulcero-membranous stomatitis, which is also due to the fuso-spirillar symbiosis, was not present in any of my cases, but this co-existence of the two affections, or rather, multiple localisation of the same disease, has been recorded by Niclot and Marotte, Grenet, Widal and Darré, Crandall, and others. In one of Blackwood's cases the specific stomatitis was followed by typical angina. In Crandall's case, on the other hand, the disease was first confined to the throat, but was inoculated into the gums by a dentist while scaling the teeth. A similar case is recorded by Costa. In convalescence from scarlet fever I have met with ulcero-membranous stomatitis in which the characteristic odour suggested the presence of Vincent's organisms, which were found to be very plentiful on bacteriological examination. I have not, however, found them in the ulcerative angina of the acute stage of scarlet

fever, as Simonin, Vedel and Lagriffoul, and Weaver and Tunnicliff have done.

Disproportion between the severity of the local and general symptoms is one of the most striking features of Vincent's angina. In most of my cases the constitutional disturbance was slight and lasted only during the pyrexial period, which, as a rule, was of short duration. In 5 the temperature was normal throughout their stay in hospital, though the local process was still in an acute stage on admission ; in 10 it ranged between 99° F. and 100° F. ; in only 4 did it rise above 102° F., the highest reading being 103·8° F. In 11 cases the temperature became normal within twenty-four hours of admission, and in only 2 did the pyrexia persist for more than four days after their arrival. Compared with diphtheria, the specific disease which it most closely resembles, Vincent's angina is a protracted affection. Whereas in diphtheria the throat becomes clean a few days after the injection of antitoxin, the healing process in Vincent's angina requires as a rule a much longer time. The average period in the 32 cases was eighteen days, the extreme limits being five days in the mildest, and fifty-nine days in the most severe.

A still more chronic course has been recorded by several writers. In one of Arrowsmith's cases the ulceration lasted over two months and involved the right tonsil, anterior and posterior pillars, epiglottis, and pharynx.

In Bayer's case the process lasted between three and four months, and defied all local treatment. Finally recovery took place under arsenic internally and strengthening diet.

In Pusateri's case, in which the diagnosis of tuberculous ulceration of the tonsils was first made, the disease lasted for over a year. Murray and Todd have also recently recorded cases of chronic ulceration of the tonsils associated with the presence of Vincent's organisms.

Two of my cases had a relapse. One occurred on the ninth day, and was probably due to accidental inoculation during painting of the throat, as the child struggled at the time. The other relapse occurred without obvious cause on the twenty-fourth day. In both cases the right tonsil and right side of the uvula were involved in the relapse, whereas the left tonsil and left side of the uvula had been affected in the initial attack.

As a rule, the fuso-spirillar couple disappears as healing commences. The fusiform bacilli persist longer than the spirilla. In 2 cases in which the organisms were found in great abundance on the fifth and seventh days, smears taken on the 10th and 9th days

respectively were negative. In another case, in which numerous fusiform bacilli and a few spirilla were found on the eighth day, there still some fusiform bacilli, but no spirilla on the twentieth, two days before the throat became clean.

In a mild case, where the disease was confined to the upper part of the left tonsil, numerous fusiform bacilli and spirilla were present on the ninth day, before treatment was started. After the application of methylene-blue powder on two successive days the fusiform bacilli were still numerous, but the spirilla had disappeared. On the fourteenth day, when only very slight opacity of the mucosa marked the site of the original lesion, neither fusiform bacilli nor spirilla could be found.

Association with other diseases.—In 4 cases, in addition to the fuso-spirillar couple found in the smear, organisms morphologically indistinguishable from diphtheria bacilli were present in the cultures. Antitoxin was given, the faucial lesions healed more rapidly than in the uncomplicated cases, and no paralyses resulted. It was at one time thought that the presence of Vincent's angina was enough to exclude diphtheria, but the error of this view soon became manifest. It is true that the co-existence of the two diseases is not common. Meyer points out that the mere presence of Klebs-Loeffler bacilli in the culture does not justify the diagnosis of diphtheria, if the clinical appearances do not correspond, as they have been found in obvious cases of Vincent's angina, without producing any change in the clinical picture. In such cases they were either non-virulent, or if virulent they did not necessarily take any part in the morbid process. Cases, however, similar to the four just mentioned, have been recorded by Blumenthal, Többen, Niedner, and Weaver and Tunnicliff, in which prompt improvement followed the injection of antitoxin. In practice, therefore, it is advisable to treat as diphtheria those cases of Vincent's angina in which organisms resembling diphtheria bacilli are present in the culture.

The association of a comparatively mild local disorder like Vincent's angina with a serious general disease like diphtheria may be compared with the co-existence of soft chancre with syphilis. In these mixed lesions the soft chancre dominates the scene, and the possibility of the more serious infection is ignored until the explosion of secondary symptoms reveals the unwelcome truth.

In one case there was a probable co-existence of inherited syphilis. A girl, aged 4 years, was admitted on May the 17th, 1905, with ulceration of both tonsils, covered with yellow slough. The lesions were predominant on the left side. No diphtheria bacilli were

present in five successive cultures, but smears showed numerous fusiform bacilli and spirilla. In spite of applications of iodine twice daily, the ulceration persisted until July the 7th, when she was given a mixture containing liq. hydrarg. perchlor. and pot. iod. thrice daily. Within a week the ulcers had completely healed.

Apart from the therapeutic result, there was nothing to suggest syphilis in this case beyond some flattening of the bridge of the nose. The value of Wassermann's reaction, which at that time had not been discovered, is obvious in a case of this kind, as Sobernheim has recently shown in dealing with the co-existence of Vincent's angina and latent acquired syphilis.

No other instances of the co-existence of Vincent's angina and inherited syphilis have been recorded, but there have been several cases published of Vincent's angina in all stages of the acquired disease. In Lagriffoul and Bousquet's case typical Vincent's angina shortly preceded the roseola. In the cases of Malherbe, Moutot, and Salomon, symptoms of secondary lues were already present. In Sobernheim's case the *Spirochæta pallida* was associated with Vincent's organisms in the throat lesions.

Sack records a case of the co-existence of Vincent's angina with tertiary syphilis, in which recovery took place under iodide of potassium. It is interesting to note in this connection as illustrative of the action of the fuso-spirillar couple in ulcers situated elsewhere than in the bucco-pharyngeal cavity, that Launois and Laederich found Vincent's organisms in a phagedænic chancre of the penis, together with the *Spirochæta pallida*.

An instructive case is recorded by Balzer and Poisot of the association of Vincent's organisms with Ducrey's bacillus in gangrenous soft chancre. As in Vincent's angina, the general condition did not correspond to the local lesion. The temperature was normal and the pulse 76. That the local malignancy was due rather to Vincent's organisms than to the organism of soft chancre was proved by the considerable improvement which followed the application of methylene-blue. The fuso-spirillar couple completely disappeared in two days, though Ducrey's bacillus still persisted.

Hébert's unique case may also be mentioned here. A man suffering from specific urethritis developed stomatitis of the gums and cheeks, associated with angina, bacteriological examination of which showed gonococci and Vincent's organisms. The case was successfully treated with a gargle and mouth-wash of potassium permanganate.

In only one case of the present series did Vincent's angina arise in convalescence from an acute specific disease. This was in a boy, aged 9 years, on the twenty-sixth day of an ordinary attack of scarlet fever. In all the others the disease was primary. With the exception of this and of another case certified as scarlet fever, all the cases were sent in as diphtheria. In all but three cases, in which it arose after some weeks' stay in hospital, the angina was already present on admission. Of the three exceptions, two were cases certified as bacteriological diphtheria, but in whom no clinical nor bacteriological evidence of diphtheria was found after admission.

The third case was that secondary to scarlet fever already mentioned.

The occurrence of Vincent's angina as a sequel of pertussis has been observed by Barlow, Graupner, and Weaver and Tunnicliff, as a sequel of measles by Weaver and Tunnicliff, and of diphtheria by Graupner.

Complications.—The only complications noted in the thirty-two cases were albuminuria in two cases which lasted two and four days respectively, serum phenomena in seven of the twelve injected with antitoxin, and the following skin eruptions: One case prior to admission presented a scarlatiniform rash, which was the cause of its being certified as scarlet fever. A similar case is recorded by Eisen, who regarded the diagnosis of scarlatina as improbable, on account of the transient character of the eruption, the complete absence of desquamation, and the slight and transient pyrexia.

Herpes labialis occurred in only one case as compared with diphtheria and non-specific tonsillitis, in which, as I have shown elsewhere ('Brit. Journ. Derm.,' 1907, p. 375), it was found with a frequency of 4 per cent. and 13 per cent. respectively.

In one case miliaria of the neck was seen on the fifth day of disease. Joint affections, the occurrence of which in Vincent's angina was recorded by Simonin and Niclot and Marotte, were not observed.

Reiche had two cases which developed palatal and ciliary palsies, loss of knee-jerks and ataxia. No similar observations have been made by others, and in spite of the negative bacteriological examination it is difficult to believe that co-existent diphtheria had not been present.

According to Simonin complications are more frequent after the stomatitis due to Vincent's organisms than after the angina due to the same cause. This he attributes to the powerful leucocytic defence provided by the tonsils. A similar opinion is expressed by

Ivanow, who found such complications as erythema multiforme, joint pains, abscesses, and appendicitis more frequent in the cases accompanied by severe stomatitis and glossitis. Like Simonin he regarded their occurrence as due to secondary infection by streptococci. The absence of serious complications in my own cases may therefore be attributed to the lack of concomitant stomatitis.

Prognosis.—The present series confirms the general rule as to the benignity of Vincent's angina.

About half-a-dozen fatal cases have been recorded. In one of Bruce's cases death was due to toxic absorption from the site of the local lesion, and in another two to suppurative broncho-pneumonia after involvement of the larynx. Pneumonia was also the cause of death in De Carli's case. In Giliberti's case the angina was associated with ulcero-membranous stomatitis, which was followed by osteomyelitis of the lower jaw. In Meyer and Schreyer's case pernicious anæmia was probably a predisposing cause of infection by Vincent's organisms, and explained the fatal issue. In Royer's case, which occurred in a pregnant woman, death took place a few days after delivery. In addition to ulcero-membranous stomatitis, pulmonary tuberculosis and gangrene, nephritis and endometritis were also present.

Most of these cases, however, as Meyer has pointed out, should be rather regarded as gangrene of the pharynx than as Vincent's angina.

Treatment.—In most cases it is sufficient to swab the affected part morning and evening with undiluted tincture of iodine, as Vincent himself recommends. If the fœtor is excessively penetrating, the throat may be syringed with a solution of potassium chlorate and myrrh. In one case where the ulceration advanced in spite of these measures, the application on two successive days of powdered methylene-blue to the ulcers was followed by rapid healing. Both in this and in another case where this treatment was adopted from the first, the urine passed within three hours of the application was light blue, but rapidly resumed its normal colour when the methylene-blue was discontinued. No internal medication was found to be necessary in any case.

Summary.

(1) Vincent's angina is an uncommon disease, occurring in 0·9 per cent. of all cases of sore throat, and in 4·9 per cent. of cases of non-diphtheritic angina.

(2) During a five years' period of observation in a hospital

population of all ages, the affection was confined to children between two and sixteen years.

(3) No instances of contagion were observed.

(4) Its incidence was greatest in the spring, least in the autumn.

(5) It was not found to show any predilection for weakly children or for cases of oral sepsis.

(6) There is nothing characteristic in its prodromal symptoms.

(7) There are not two distinct varieties of Vincent's angina. The ulcerative is merely a later stage of the membranous form.

(8) Constitutional symptoms are slight or absent, but the local affection is more pronounced than in diphtheria.

(9) Association with other diseases is uncommon.

(10) The prognosis is favourable. Complications are infrequent and usually insignificant.

(11) Treatment consists in the local application of tincture of iodine or methylene-blue powder. Internal medication is usually unnecessary.

References.

This list contains only those names which do not appear in the bibliographies given by Vincent in 'Annales de Dermatologie et de Syphiligraphie,' 1905, p. 416 (131 references), and by A. Meyer in 'Sammlung klinischer Vorträge, Chirurgie,' Nr. 137–138, 1908 (246 references).

1. Arrowsmith.—'The Laryngoscope,' 1909, p. 340.
2. Balzer and Poisot.—'Ann. de Derm. et de Syph.,' 1906, p. 601.
3. Barlow.—'Metropolitan Asylums Board Reports,' 1903.
4. Buhlig.—'Journ. Amer. Med. Assoc.,' vol. i, 1908, p. 1791, and 'Quart. Bull. N.W. Univ. Med. School,' vol. xi, 1909, p. 5.
5. Cushing.—'Montreal Med. Journ.,' 1909, p. 512.
6. De Carli.—Quoted by Pusateri, *loc cit.*
7. Eisen.—'Centralbl. f. innere Med.,' 1908, p. 629.
8. Giliberti.—'La Pediatria,' 1907, p. 589.
9. Gordon.—'Montreal Med. Journ.,' 1908, p. 190.
10. Hébert.—'Bull. de la Soc. de Méd. de Rouen,' 1907, p. 114.
11. Lagriffoul and Bousquet.—'Montpellier Méd.,' vol. i, 1909, p. 339.
12. Lavagna.—'Il Policlinico, Sez. Prat.,' 1907, p. 1363.
13. Martin.—'Bull. et Mém. de la Soc. Méd. des Hôp. de Paris,' 1904, p. 552.
14. 'Metropolitan Asylums Board Reports,' 1905–1907.
15. Murray.—'Journ. Amer. Med. Assoc.,' vol. ii, 1909, p. 373.
16. Niedner.—'Berlin. klin. Woch.,' 1908, p. 1380.
17. Pusateri.—'Archiv Ital. di otol., rinol., e laryngol.,' vol. xx, 1909, p. 47.
18. Repaci.—'Compt. Rend. de la Soc. de Biol.,' vol. lxvi, 1909, p. 860.
19. Royer.—'Amer. Journ. Obstet.,' 1908, p. 642.
20. Rudloff.—'Deut. med. Woch.,' 1908, p. 2177.
21. Sobernheim.—'Berlin. klin. Woch.,' 1908, p. 1380, and 'Arch. f. Laryngol.,' 1909, p. 504.
22. Todd.—'Journ. Amer. Med. Assoc.,' vol. ii, 1909, p. 375.
23. Vedel and Lagriffoul.—'Montpellier Méd.,' vol. i, 1905, p. 458.

ADLARD AND SON, IMPR., LONDON AND DORKING.