

EXANTHEMATOUS ERUPTIONS FOLLOWING THROAT OPERATIONS.*

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The frequency with which eruptions follow operations on the throat has led me to inquire into the nature of the rash, and note its effect. My observations are not by any means new. Similar rashes have been reported by Wyatt Wingrave, amongst others. Wingrave saw thirty-four cases of rash following the removal of tonsils and adenoids, in seven years.

Lennox Browne says that "after removal of chronically enlarged tonsils symptoms of pyrexia, rash, and desquamation, which are practically identical with scarlatina, are exhibited occasionally." In his article on "Hypertrophy of the Pharyngeal Tonsil," he says "that a traumatic fever may develop, accompanied with a surgical rash which partakes of the nature, and runs the course, of a roseola, not infrequently terminating in desquamation, and that on this account the term surgical scarlet fever is sometimes employed."

The rash generally appears on the second or third day after the operation, and may be papular, roscolar, or erythematous in type. It generally appears on the neck, chest and abdomen, but sometimes extends to the face and extremities. It lasts usually two or three days, but sometimes as long as five days. After reaching its maximum intensity it gradually disappears. Most cases terminate in desquamation, in some there is severe itching before the desquamation. There is usually very little constitutional disturbance, and the temperature is only one or two degrees above the normal, although some cases have a very high temperature.

Hoffa of Würzburg studied this question of exanthematous eruption following surgery. He believes that some cases cited as scarlet fever are accidental infections in which the diagnosis of scarlet fever is mistaken for that of erysipelas. In this same paper he believes that he has seen several cases of authentic scarlet fever associated with or immediately following surgical interference. Some eruptions simulating scarlet fever he describes as a form of simple erythema in which vaso motor disturbances may be the cause for the same.

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He believes that the fibrin ferment in the blood is a causative element and cites Recklinghausen and Landois, who saw eruptions resembling scarlet on the skin of dogs after blood transfusion. Eruptions have frequently been seen after the use of anaesthetics. So also have eruptions appeared when carbolic or bichloride has been extensively used. These so-called bichloride or carbolic intoxicants are by no means rare. Scarlatinal affection frequently takes place directly by means of the open wound. Billroth describes the case of a little girl from whom he removed a papilloma of the tongue. On the following day she had fever followed by a scarlatinal rash on the chest. At first an erythema was suspected, possibly an infection from the tongue. The sutures were removed and the wound was found healing, and very healthy in appearance. The rash continued to spread over the whole body. It was followed by a distinct desquamation. Thomas Smith performed a lithotomy. Two days later a distinct scarlatinal rash appeared around the wound and spread over the back and extremities. This was associated with sore throat and was followed by desquamation.

Lannelongue operated on a tubercular child who was four years old. He incised an abscess on the elbow. On the following day a fine punctate rash appeared resembling a phlegmon. One day later the child had an angina and a typical scarlatinal eruption over the entire body. Two weeks later, after a very severe illness, desquamation appeared. A similar case was reported by Gerhardt, Gerhardt, *Arch. f. Klin. Med.* Bd., xiii., "Zur Naturgeschichte der Infektions-krankheiten."

Gerasimovitch reports forty-four patients out of 2000 operated on at the Children's Hospital, St. Petersburg, between 1897 and 1902, developed afterwards the so-called surgical scarlatina. The infection coincides with the trauma of the surgical intervention. This form of scarlatina is marked by the short period of incubation, the initial fever, the rash and desquamation around the wound, complications on the part of the wound, and, finally, by the absence of specific scarlet fever sore throat. Scarlet fever is classed by the writer as a wound infection liable to complicate any operation or wound the same as erysipelas, tetanus, etc." He believes that many cases of the so-called erythema following the use of diphtheria anti-toxine should probably be regarded as surgical scarlatina. The article concludes with the bibliography on the subject, after presenting in an elaborate table the details of 36 of the surgical scarlatina on which the work is based. The period of incubation was less than twenty-four hours in 8 cases; less than 3 days in 13; less than

5 in 5, and from 12 to 66 days in the remainder. The course of the affection is mild, and none of the three deaths in the series could possibly be attributed to it.

Sir James Paget, in a clinical lecture delivered in St. Bartholomew Hospital, in 1863, describes a case of a boy in whom the operation of lithotomy was performed. The day after the operation an eruption exactly like scarlatina appeared over the whole body. He describes six cases seen, after operation, in private practice, and furthermore he gives notes of four more cases that occurred before or since. These cases he says may have been only casual coincidences of scarlatina with surgical diseases. Paget states that, therefore, he cannot doubt that there is something in the consequences of surgical operations which makes the patients peculiarly susceptible to the influence of the scarlatina poison. And, together with this susceptibility we may observe that the disease undergoes in them certain modifications, especially in the period of incubation, which is much shortened. In all the ten cases that I have noted, the eruption appeared within a week after the operation; and in eight of them within three days after it; namely, in two cases on the first; in three on the second; and in three on the third day. Other deviations from the typical course of scarlatina were, that in some of the cases the eruption came out over the whole surface at once, and on the limbs more fully than on the face and chest; in some there was no sore throat; in others no desquamation.

A physician incised an abscess in a child sick with scarlet fever. Shortly after this he used the same knife for an operation on another patient, and this was followed by a typical eruption of scarlet fever. Rieding cites a case of a girl in whom a lipoma was removed. A rash followed resembling erysipelas, which later was diagnosed as scarlet fever. Nephritis was associated with it. It was followed by desquamation. Rieding reports a series of cases in addition showing the association of scarlet fever after incisions were made.

Patin* describes a boy fifteen years old who suffered with a fracture of the humerus. This was followed by scarlet fever. There was desquamation and nephritis.

A case of Prof. W. Leube, a physician was accidentally wounded during a post mortem examination of a case of scarlet fever. This physician developed a typical scarlet fever nine days later. The attack was ushered in by vomiting. There seems to be a predisposition for the development of the scarlatinal infection after opera-

*Patin, "Ueber Scharlach bei Verwundeten." Diss. Wurzburg, 1884.

tions. Paget believes that *the period of incubation* is shortened by the presence of a wound. He illustrates this by citing the case of a child that was admitted in the hospital, operated on the fourteenth of February, and on the sixteenth of February a typical scarlet fever eruption appeared. The source of the infection was another child that was admitted for a bronchitis and developed a scarlet fever three hours later. Paget maintains that just as the period of incubation has been shortened, so also would the various complications be modified. We frequently have a typical scarlatinal infection without its usual complications, so that it would not be unusual to have some of the *usual complications* absent. Scarlet fever was noted at a time when no scarlet fever existed in that particular locality. The tenacity, or rather the persistence, with which scarlatinal poison adheres to clothing is worth remembering. Months after the infection existed the specific poison, most probably microbic, will remain virulent. Goodhart and Paley, in a contribution to the etiology of scarlatina in surgical cases, believes that the antiseptic treatment of wounds did not prevent the scarlatinal infection. Hoffa disagrees with Goodhart and cites with House, who studied an epidemic of scarlet fever in the surgical wards of Guy's Hospital in London.

The duration of the disease is much shorter.

The febrile symptoms are of much shorter duration. Olshausen* describes a series of eruptions occurring in 143 cases. He considers the exanthem true scarlet fever.

Simpson† describes the analogy between puerperal and surgical fever.

In Olshausen's 143 cases of scarlet fever after confinement, 64 died, or 48 per cent.

Rashes frequently follow burns and scalds; they cannot, however, be classed with scarlet-like rashes. Spencer Wells relates of a case of a bright red rash like scarlet fever that enters the body fifteen minutes after perchloride of iron has been applied to the uterus. Henry Lee‡ describes secondary eruptions on the skin after surgical injuries.

Wilks Budish, *Med. Jour.*, 1864, and Cheadle *British Med. Jour.*, 1879, vol. 1, p. 75, states that patients with open wounds are very susceptible to scarlet fever. The most complete paper on this subject is the one by Edward C. Stirling in the St. George's Hosp. report, vol. x, 1879, which is well worth studying. He describes

* Arch. f. Gynaecol., bd. ix.

† Edin. Med. Journ., vol. 2, p. 414, third series.

‡ Lond. Lancet, Jan. 4, 1869.

seven cases of scarlet fever occurring after circumcision. The eruption ran an ordinary course, followed by desquamation, in some instances by the sequelae. Certain drugs, such as belladonna,

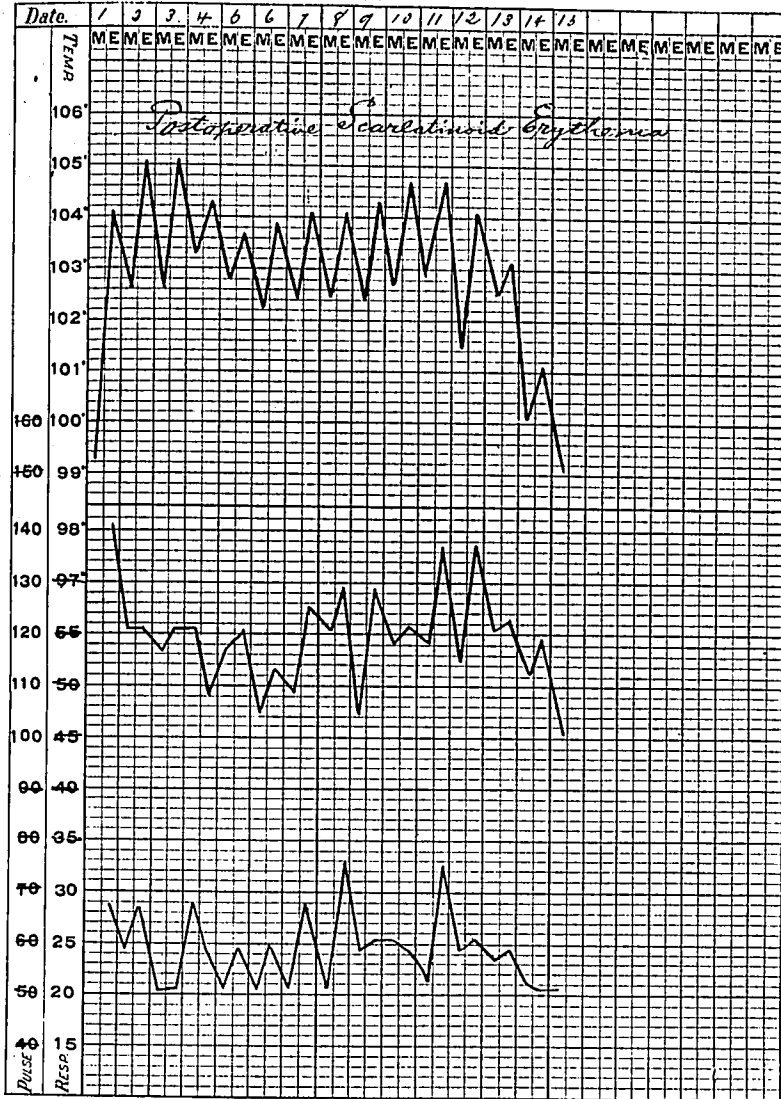


Chart 1.—Case I.

copaiba, quinine, chloral, salicylic acid and ptomaines cause eruptions. Tainted canned foods are also liable to cause eruptive conditions.

Kidd describes a rash following delivery. This rash was of a rose color, which he called roseolar uterina.

The following cases will illustrate severe and mild forms of rash following throat operations, as seen in private practice:

Case I. A male child, 7 years old, was taken to the Manhattan Eye and Ear Hospital during the winter of 1902. The mother told me that his tonsils were removed by Dr. W. F. Chappell. He had always been a delicate child that suffered with mouth breathing and nasal catarrh. He was backward in development. I saw this child two days after the operation and found the following condition: A punctiform rash involved the trunk, arms and legs. The face was flushed. This rash corresponded to the diffuse scarlatinal rash seen in children. The cervical glands were enlarged and the tonsils and pharynx were covered with necrotic patches resembling scarlet fever. The temperature was 104° F., pulse 140, respiration 28. There was a history of vomiting preceding the redness of the body. There was no history of exposure to scarlet fever. The child sat in the dispensary with other patients, otherwise there was no distinct exposure to scarlet fever. The pyrexia was of a persistent character. The temperature rose to 105° F. in spite of antipyretic treatment. The child showed a distinct scarlatinal toxemia. After the first week of treatment I detected albumin and hyaline casts in the urine. The child did not sleep and complained of pain and headaches. Both ears discharged, so that in the second week of illness he suffered with acute nephritis and double otitis. The case was so interesting that I asked Dr. W. Brannan in consultation. He agreed with me regarding the diagnosis of scarlet fever and thought the persistent high fever due to the condition of the ears. The family suggested Dr. Dench, who examined the ears and enlarged the opening in the middle ear. The temperature persisted for five days following the ear treatment, so that I concluded the toxemia from the nephritis caused the febrile disturbance.

In this case we have a healthy child in a normal condition subjected to an operation on the throat. Two days later he comes down with a rash having throat symptoms, otitis and nephritis.

Case II.—D. F., born September 28, 1898. Was prematurely born in the seventh month of pregnancy. She is an only child. Her parents are healthy. The family history is good. The mother has had one miscarriage at three months. This child was nursed at the breast about four months, and then put on Mellin's food. She has always had dyspeptic difficulties associated with continuous constipation.

Her teething began when nine months old. Her walking commenced at seventeen months. She then had pneumonia. Is susceptible to bronchitis and tonsilitis. Had a very bad attack of dysentery in the summer of 1901. Has a large hernia, for which she is treated by Dr. De Garmo. She had a second attack of pneumonia in October, 1902.

Adenoid vegetations were recently removed by Dr. H. Jarecky, after which the child's condition was normal. She is a very nervous child, and has always had marked evidences of rickets. Carious teeth, Harrison's groove, and the funnel-shaped depression of the thorax is well marked. Her present illness began with vomiting and a temperature of 104° F. An exanthematous rash covered the

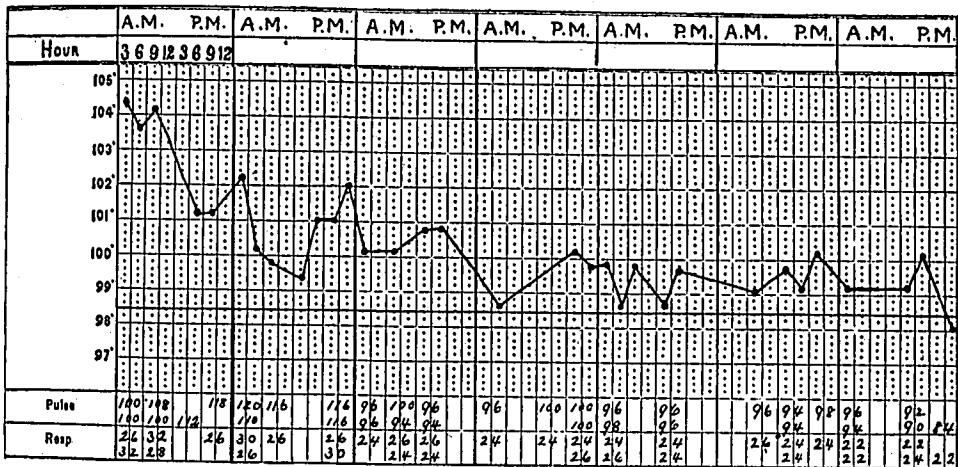


Chart 2.—Case II.

entire body. Several membranous patches were plainly seen on the pharynx and tonsils. A culture taken showed the absence of Klebs-Loeffler bacilli. The glands of the neck were enlarged. A diagnosis of scarlet fever was made.

Case III.—Ruth F., 3 years old, was a very nervous and restless child. Her mother said that she was bottle-fed, and had been constipated most of the time. She was backward in walking, in talking, and in teething. As an infant she was more or less dyspeptic. For the last year she is a bed wetter, snores during sleep, breathes with her mouth open, and seems to be hard of hearing at times. There is a slight cough. The child's body appears frail and appears backward in development.

Diagnosis:—Adenoid vegetations, hypertrophied tonsils, atony of the stomach and bowels. The operation for the removal of the adenoids and tonsils was performed by Dr. Freudenthal with the usual aseptic care. The instruments were sterilized, and the child given all the attention that is possible with competent nursing, etc. Three days after the operation I was sent for because an eruption appeared. It was a fine pin point eruption occupying the site of the hair follicles and having a very deep reddish color. The rash first appeared on the abdomen, neck and back, later on the extremities and face. The temperature was 101° F. in the morning, and 103° F. in the evening. The glands of the neck were swollen. The tonsils and pharynx showed evidences of necrotic patches. In about a week the temperature was normal. The rash had faded and a furfuraceous desquamation was noticed. The diagnosis of post operative scarlatiniform eruption was made. No complications ensued. The child was apparently well in two weeks.

The cases are not numerous enough to determine the import of these variable deviations from the type of scarlatina; but that in which all of them, whether complete or incomplete in other characters, agreed, namely, the *very early period after the operation at which the rash appeared, deserves particular notice*. It adds to the evidence, that the *appearance of scarlatina* is in some way connected with the *early consequences of operations*. If it were not so, and if patients after operations had only the same liability as others, there would be no reason why the eruption should appear early, rather than late, after the operation; but, so far as I have seen, it always appears early—always within the first week.

Two explanations may be offered for this fact. Either the condition induced in a patient by a surgical operation is one that gives a peculiar liability to the reception of an epidemic or contagious morbid poison, and any one of these, being imbibed immediately after the operation, produces its specific effect in much less than the usual period of incubation; or else those who suffer with scarlatina within a few days after operations had previously imbibed the poison, but would not have manifested its effect so soon, if at all, unless their health had been exhausted or disturbed. The second of these explanations appears rather more probable; for it is in accordance with what has been observed when many persons have been exposed to the contagion of fever, and some have been afterwards exhausted by fatigue or otherwise. These have had fever; while those who rested after exposure have escaped it."

Various pathogenic bacteria are found in the throat under normal conditions, among these are the streptococci, Klebs-Loeffler bacillus and the staphylococcus.

A smear taken from the pharynx or tonsils and inoculated on the surface of blood serum or agar will invariably show numerous micro-organisms. Children having adenoids and hypertrophied tonsils usually show a subnormal exterior. They are pale as a rule, have enlarged lymph glands, are peevish and irritable by day and suffer with insomnia at night.

The removal of enlarged tonsils or adenoids opens a direct means for infection, *provided virulent bacteria* exist at the time of the operation. The question arises, can such exanthemata be prevented, and if so, how? It seems to me that the question of prophylaxis is very important, if it is attainable from the study of the bacteriology of the nose and pharynx.

We note that pathogenic bacteria are frequently present. This can be easily verified. I have had a large series of cultures taken from children at random as they appeared in the children's service of a dispensary in this city, and was surprised to find living Klebs-Loeffler bacilli without any evidence of inflammation or pseudo-membrane in apparently healthy throats.

Conclusions:—From the experience given this evening and from a careful study of the literature of this subject, I believe that exanthematous eruptions such as scarlet fever or measles have nothing to do with the operation itself. That the infection evidently took place before the operation. That the period of incubation might have been shortened, and that the disease appeared sooner owing to the traumatism. The question of prophylaxis by means of local pharyngeal antiseptics to destroy pathogenic bacteria in these regions is one that deserves attention. It is important to ascertain if possible whether or no our patient has been exposed to any infectious disease for a number of days prior to the operation. The thermometer would be of valuable assistance. If the temperature is above normal would it not be better to postpone operative procedure until normal conditions are established?

I believe the infection takes place before the operation, and that the operation itself lowers the resistance of the body, and shortens the period of incubation. This will account for all of my cases and those reported by many clinical observers, being called surgical scarlet fever, when in reality they are true cases of scarlet fever, infected prior to the operation.

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- Geo. May, Jr., *British Med. Journ.*, vol. 2, p. 428. Scarlet Eruption followed by complete desquamation. Six days after an accident. No cases of scarlet fever in same village before or after.
- M. Trebat relates the case of a child that was convalescing from measles. An incision was made into an abscess at this time. This was treated for fifteen days with a drainage tube. A fistula remained which was incised. On the following day there was a severe rise of temperature, sore throat and a general scarlatinalform eruption. M. Hardy diagnosed scarlet fever. Desquamation occurred.
- Henoch relates the case of a boy who had a pectoral abscess, *Charité Annalen*, 3 jahrgang, 1876.
- It was incised with antiseptics. Three days later there was a marked rise in temperature and a rash appeared on the face, arms, and inner side of the thighs which spread to the back and thorax. Many miliary vesicles were seen on upper part of thighs. The tongue was white in the middle, with tip and edges red. The papillae were very prominent. Ten days after the appearance of the rash, desquamation commenced over the entire body which lasted twelve days. Henoch considers this case scarlet fever on account of the rash, angina, milia, and the characteristic peeling.
- The total number of cases of scarlet fever in the Great Ormond St. Hospital in twenty years, in surgical cases was 163.
- Clinical Lectures, Sir James Paget, 1st edition, p. 350.
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- Fillippow records 16 cases of influenza complicated by scarlatina.
- Krams ztyk *Jahrbuch f. Kinderheilk.*, Band xxxiv, records an epidemic of influenza in Warsaw accompanied by scarlet fever-like rash.
- Rubella or roetheln usually resembles measles rather than scarlet fever. In some epidemics, rubella more closely resembles scarlet fever than measles.
- Filatow, *Arch. f. kinderheilk.*, 1886, reports mild scarlet fever cases during an epidemic of influenza.
- Clement Duker, *Lancet*, March 3, 1894, describes distinguishing features between epidemic aroscola and scarlet fever.
- A red rash is frequently seen during suppuration, due to septicaemia. Diagnosis, says Ashby in a difficult case, may be out of the question, but in any case it can only be arrived at by collecting all the evidence available, weighing it carefully, and giving no one piece of evidence a fictitious importance.