

FILATOW'S SPOTS IN MORBILLI.

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IT seems now to be generally recognised that the special spots first discovered by Filatow in the mouths of patients suffering from morbilli are pathognomonic of the disease. Filatow described them in the third edition of his work, "Acute Infections-Krankheiten," in 1895. Previous to this Flindt in *Sundhedskollegiets Aarsbaretning* for 1880 had described certain spots on the palate and on the buccal mucosa, but he does not seem to have correctly distinguished these particular spots. After Filatow Koplik described the spots in *Archives of Pediatrics*, December, 1896, and since that time they have usually borne his name.

Filatow's spots appear as very fine white specks. Koplik, however, describes them as bluish-white, but most observers will probably agree with Filatow in considering them to be white. In size these spots are often quite minute and require a strong illumination for their recognition; at other times they are three, or possibly five, times as large and are then very readily distinguished even with the reflected light of an oil lamp. On rubbing the spots with the handle of a teaspoon it will be found that the white substance of which they are composed is not at all easily removed. Around each spot is a red areola. On the first day of their appearance the red areola may, however, occasionally be absent, and it will then be very difficult, if not impossible, to make a confident diagnosis. Fortunately, however, the appearance of the white speck is very shortly followed by that of the red areola, the spots thereby becoming distinctive. At first the spots may be very few in number, perhaps only one or two, this being especially the case on the first day and the last day of their appearance. In some cases even throughout the whole course of the attack only a small number may present themselves; thus, in one of my cases four was the greatest number which were ever visible at any one time throughout the disease, but in others they become so numerous that the whole of the areas affected may be covered with them. These little spots consist of fine papillæ, the epithelium of whose summits has become pulpy and whitened, whilst the papilla itself and the area of mucosa immediately surrounding it have become hyperæmic and slightly swollen, so that one gets the appearance of the white speck surrounded by the red areola. Filatow clearly took this view of their nature. Certain observers have, however, erroneously described them as vesicles. In cases in which this exanthem is very abundant the individual specks may lie in such close apposition that the white substance of contiguous specks may coalesce, thereby forming spots of a size unusual for Filatow's spots and raising in one's mind a suspicion that they may be due to some form of stomatitis other than the kind in question. This suspicion is, moreover, often strengthened by the observation that the white substance is in these conditions often much more easily erased, thereby increasing the resemblance to some of those forms of stomatitis which are met with in the early stages of scarlet fever and other febrile conditions. Fortunately, however, even in the most abundant eruptions of Filatow's spots a very large number remain discrete and facilitate the diagnosis. The hyperæmia and swelling of the mucosa which, as above described, appear around each speck, rapidly extend, so that the general surface of the mucosa becomes increasingly reddened. At one stage this often presents a macular arrangement, constituting an appearance that has often been noticed in morbilli and which was at one time held to be pathognomonic of the disease. In many cases the reddening extends over the whole mucosal surface, rendering it uniformly injected; upon this injected mucosa Filatow's spots may still be visible. Filatow's spots when they disappear generally do so with great rapidity. They are often present in moderate abundance on the one day and entirely absent on the next, for when the substance constituting the white speck is cast off all trace of the original existence of a Filatow's spot disappears, the site of a spot then presenting no optical character which distinguishes it from the rest of the mucosa.

The commonest site for Filatow's spots is the buccal mucous membrane and on this they have a partiality for

certain localities. If the spots are few in number the most likely place to find them is opposite to, and on a level with, the bases of the lower milk molars on either side; in this place they often form a small cluster. Another very favourite locality is the corresponding situation with regard to the upper molars; here also a cluster may be seen. Another position is opposite to the line of junction of the upper and lower molars when the jaws are closed; here they are frequently distributed as a somewhat straggling line. At other times they are more or less evenly disposed over the mucosa in greater or less profusion. After the buccal mucosa the inner surface of the lower lip is the part most commonly affected. In this locality, however, less white substance is usually present at the summit of each spot, so that the recognition of the spots is more difficult. The spots are best seen close to the fornix of the lip and the jaw. The third commonest site is the inner surface of the upper lip, this site being far less frequently affected than the preceding. Certain other localities also are occasionally affected. Amongst the 76 cases which I have observed there were three in which Filatow's spots were distinctly seen to be invading the gum of the lower jaw. In two of these cases they were in great profusion and in one of them they were noticed to extend up to the very margin of the teeth. Filatow's spots may also be seen on the buccal mucosa as far back as its posterior limits, and in some of my cases they were noticed to be present on the bridge of mucosa which passes on each side between the upper and lower jaw at the back of the posterior molars and which connects the cheek with the soft palate. In this situation they were present in ten cases. The spots may also occasionally be found on the soft palate itself; thus, in two cases they were readily visible on the soft palate for the distance of from a third to a half of an inch within the inner margin of the teeth, and in a third case they extended still further. In this particular case—that of a child aged nine years—Filatow's spots were far more numerous than in any other case that I have seen. They were in the greatest profusion on the buccal mucous membrane and the inferior and superior labial mucosæ; they were in great profusion on the mucosa of the gums and the "bridges" above described, and they extended in profusion over almost the whole of the soft palate and the uvula. On the palate they were most numerous in the neighbourhood of the fauces. In this case they were also present on the under surface of the tongue; here the spots were only three or four in number but they presented so typical an appearance that their identity was beyond dispute. Sobel is the only writer, so far as I am aware, who also describes them in this position.

The age of the patient seems to have no controlling influence; they have been seen in the mouths of adults as distinctly as in those of children.

With regard to the time at which the spots first appear, Filatow isolated a case six days before he saw the exanthem. Knöspel, in describing his 41 cases, says that he found Filatow's spots in one case five days, in six cases four days, and in three cases three days before the exanthem. Maroney amongst 140 cases of morbilli observed the spots in two cases four days, in four cases three days, and in 20 cases two days before the exanthem. Maroney amongst 140 cases of morbilli observed the spots in two cases four days, in four cases three days, and in 20 cases two days before the exanthem. Koplik cites 16 cases and amongst these the earliest appearance of these specific spots of Filatow was three days previous to the rash on the skin. Amongst my own 76 cases they occurred in nine cases three days before the exanthem. I have never seen them earlier than this.

My list of 76 cases comprises those consecutive cases of morbilli dating from May, 1898, to the present time that came under observation at a period in the disease at which one could reasonably expect the specific spots to be present. These spots have their own definite periods of appearance and disappearance with relation to the general course of the disease, just as is the case with the exanthem, and it is therefore interesting to look over this list and study the dates of these occurrences. Thus amongst my 76 cases I find that on the fourth day preceding the exanthem five cases were examined and that in none of them were the spots seen; that on the third day 19 cases were examined with a positive result in nine; that on the second day the respective numbers were 26 and 19; and that on the day immediately preceding the exanthem they were 33 and 33. On the first day of the exanthem they were 57 and 57; on the second day they were

59 and 54; on the third day they were 60 and 30; on the fourth day they were 58 and 10; on the fifth day they were 57 and 4; and on the sixth day they were 57 and 0. It will thus be seen that whenever my cases were examined on the day of the first appearance of the definite onset of the exanthem (as apart from premonitory rashes) and the day preceding it these specific spots of Filatow were invariably present. It will also be noticed that the incidence for cases examined on either the second day of the exanthem or the second day preceding the exanthem was 75 per cent.; whilst for those on the third day of the exanthem or the third day preceding it the incidence was 50 per cent. Amongst my cases whenever Filatow's spots have persisted up to the third day of the exanthem they have nearly always by that time become very much diminished in numbers, and frequently in definition; whilst on the fourth and fifth days they were often barely distinguishable, and were in several cases far from typical in appearance. I have never seen them later than the fifth day. In most cases they disappeared earlier than the exanthem, but in one or two cases both spots and exanthem disappeared simultaneously.

I may mention that every one of my cases exhibited Filatow's spots. My figures, therefore, are 76 cases with Filatow's spots present in 76; Koplik's, 16 and 16 respectively; Sobel's, 35 and 35; Slawyk's, 52 and 45, but seven, he states, were not sufficiently carefully examined for the spots; Rolly, 78 and 67, or 74 and 67 if four are excluded where the patients had the exanthem when first examined; Finkelstein, five and five; Libman, 50 and 50; and Maroney, 140 and 132. Knöspel saw the spots in 41 cases, but he does not state if these cases were all consecutive.

Certain writers have said that the differential diagnosis of Filatow's spots from others which are found in the mouth is always an easy matter, but with this I cannot agree. In the first place, as above described, the spots during the first few hours of their existence may lack the red areola, and without this important characteristic no diagnosis of Filatow's spots can be secure; and in the second place, in the formation of the diagnosis the following conditions must always be borne in mind. 1. Certain spots of a permanent nature are often present on the buccal mucosa. These, when present, are papules of about the size of a medium-sized Filatow's spot; they are, however, quite inerasable and in colour are always yellowish instead of white, and consequently when once distinguished should no longer give rise to trouble. 2. One writer (Rolly) says that small curds of milk form the only real difficulty; this should not be so, in that curds of milk would not be fixed to the mucosa at all, whilst Filatow's spots are firmly adherent. 3. In thrush the spots are so large and the distribution so anomalous for Filatow's spots that there is no difficulty in distinguishing the two conditions; thrush occurring so often over the soft palate, on the tonsils, and on the dorsum of the tongue—situations for the most part unaffected by Filatow's spots. 4. Aphthous stomatitis to my mind is the only great difficulty in differential diagnosis. Of course, a large plaque of stomatitis is easily excluded, as, for instance, the plaque so often seen on the buccal mucosa level with the first molar teeth; but smaller spots of stomatitis, and especially the small fugitive ones so often encountered at the commencement of febrile disorders—e.g., scarlet fever—and which vanish within a few days, sometimes offer great difficulties in diagnosis from Filatow's spots, especially on the first day of their appearance. The principal differences, however, are these. Small aphthous spots are usually much more readily erased with the handle of a teaspoon; they often lack the red areola; some of them are often too big, thereby casting doubt on the others; they are usually too opaquely white for Filatow's spots; and, besides these points, ulceration is often present at their bases.

With regard to the absence of Filatow's spots in diseases other than morbilli Sobel states that for two months in 1898 he took special pains to examine the buccal mucosa of children affected with various skin eruptions, and that amongst the 1000 cases he examined during that period he in no case found any spots of a similar nature. To this I can likewise bear witness, for during the last two and a half years' practice at a fever hospital I have paid special attention to this point, and excluding the presence of morbilli I have never seen them in any of the 3000 or 4000 cases which I have examined during that period.

As a definite means of diagnosis I would especially lay stress on the utility of these spots in the following conditions where the diagnosis is often notoriously difficult.

1. Rötheln is perhaps the disease or condition *par excellence* that simulates morbilli, and it is therefore the one in which the greatest difficulty in differential diagnosis occurs. Filatow's spots are invariably absent in rötheln, and with this statement all writers on the subject are agreed, so that by means of these spots one can accurately separate the two diseases if seen on the appropriate days, and one can await the evidence of subsequent events with composure. Of rötheln I have seen 31 cases since May, 1898, and in none of them were Filatow's spots present. I may add that I saw all of them from the beginning of the exanthem. 2. When laryngitis occurs in morbilli before the exanthem and is of a very decided character, with much croup and recession of the chest walls, the case is liable to be certified and sent to a fever hospital as one of laryngeal diphtheria; but if on examination these spots are seen one can at all events be quite sure of one thing, and that is, that whatever else the child may have it most certainly has morbilli, and it was by means of Filatow's spots that the six cases of this nature admitted into the hospital with which I was associated since May, 1898, were all correctly diagnosed on admission as having morbilli, much as the other symptoms seemed to point against it. In one of these cases the exanthem did not occur till two days after admission, in another case until two and a half days, and in the other four till three entire days had elapsed. I may add that in not one of these six cases was diphtheria present. 3. Of the condition of morbilli sine eruptione one of my cases was a very striking and undoubted example. The patient was the last unprotected case in a ward ravaged by morbilli who had not contracted the disease. On Nov. 21st, 1899, he presented typical early symptoms of morbilli. His face became slightly puffy, he was irritable and drowsy and resented any disturbance, and he had a distinctly morbilloid cough, thin rhinorrhœa, increased salivation, and a very noticeable morbilloid odour of the breath. There was no lacrymation, no rise of temperature, no exanthem, and no Filatow's spots. On Nov. 22nd there was one very small and ill-defined Filatow's spot on the left buccal mucosa; also a nondescript white spot further back. On Nov. 23rd the child was very much better; he looked lively again and the cough had disappeared. Four very definite Filatow's spots were present on the right buccal mucosa, clustered about one site. On Nov. 24th no Filatow's spots were visible, and on Nov. 28th no exanthem had appeared at all, although very carefully searched for, and the boy was quite well again. Such a case as this, without the pathognomonic sign, would generally leave one in a very doubtful state of mind as to the correct diagnosis; but when one has well-marked morbilloid symptoms, associated with the presence of these spots of Filatow, I think one can rest quite assured that the case is most certainly one of morbilli, in spite of the complete absence of any exanthem. Maroney cites two cases of a similar nature, except that instead of being mild they were fatal attacks. Further observation of the spots may settle the question as to the existence of measles without catarrh, which is at present in dispute. 4. It is well known how very closely some antitoxin rashes and erythema multiforme from other causes simulate morbilli. It is true that catarrh may be more or less completely absent, but still the rash itself may be so very suggestive that if one did not have these spots to fall back on, one would frequently on first seeing the patient be left in some little doubt about the case. Filatow's spots are invariably absent in these cases.

I need hardly point out the great importance of Filatow's and Koplik's discovery from a practical point of view. It is important in that it enables one to accurately distinguish morbilli from certain conditions in which the diagnosis would otherwise be very difficult or beyond our powers. It is also important in that it enables one to check outbreaks of morbilli in households, hospitals, schools, or other institutions by the early isolation of those affected. In the case of schools it has been attempted to stamp out epidemics by notification on the part of schoolmasters and others; but this plan, unfortunately, has hitherto met with little or no success, in that the cases have for the most part been distinguished too late. The method of diagnosis hitherto most commonly in vogue has been by means of the exanthem, but by the time of the appearance of the exanthem catarrhal symptoms are in most cases fully developed. Now, it is becoming generally recognised that the contagium of morbilli is conveyed principally by means of the mucous discharges rather than by the air; hence the importance of isolating a

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1. Rötheln is perhaps the disease or condition *par excellence* that simulates morbilli, and it is therefore the one in which the greatest difficulty in differential diagnosis occurs. Filatow's spots are invariably absent in rötheln, and with this statement all writers on the subject are agreed, so that by means of these spots one can accurately separate the two diseases if seen on the appropriate days, and one can await the evidence of subsequent events with composure. Of rötheln I have seen 31 cases since May, 1898, and in none of them were Filatow's spots present. I may add that I saw all of them from the beginning of the exanthem. 2. When laryngitis occurs in morbilli before the exanthem and is of a very decided character, with much croup and recession of the chest walls, the case is liable to be certified and sent to a fever hospital as one of laryngeal diphtheria; but if on examination these spots are seen one can at all events be quite sure of one thing, and that is, that whatever else the child may have it most certainly has morbilli, and it was by means of Filatow's spots that the six cases of this nature admitted into the hospital with which I was associated since May, 1898, were all correctly diagnosed on admission as having morbilli, much as the other symptoms seemed to point against it. In one of these cases the exanthem did not occur till two days after admission, in another case until two and a half days, and in the other four till three entire days had elapsed. I may add that in not one of these six cases was diphtheria present. 3. Of the condition of morbilli sine eruptione one of my cases was a very striking and undoubted example. The patient was the last unprotected in a ward ravaged by morbilli who had not contracted the disease. On Nov. 21st, 1899, he presented typical early symptoms of morbilli. His face became slightly puffy, he was irritable and drowsy and resented any disturbance, and had a distinctly morbilloid cough, thin rhinorrhœa, increased salivation, and a very noticeable morbilloid odour of the breath. There was no lachrymation, no rise of temperature, no exanthem, and no Filatow's spots. On Nov. 22nd there was one very small and ill-defined Filatow's spot on the left buccal mucosa; also a nondescript white spot further back. On Nov. 23rd the child was very much better; he looked lively again and the cough had disappeared. Four very definite Filatow's spots were present on the right buccal mucosa, clustered about one site. On Nov. 24th the spots were visible, and on Nov. 28th no exanthem appeared at all, although very carefully searched for. The boy was quite well again. Such a case, where the pathognomonic sign, would generally lead to a doubtful state of mind as to the correct diagnosis when one has well-marked morbilloid symptoms associated with the presence of these spots of Filatow. I think one can rest quite assured that the case is certainly one of morbilli, in spite of the complete absence of any exanthem. Maroney cites two cases of a similar nature, except that instead of being mild they were fatal attacks. Further observation of the spots may settle the question as to the existence of measles without catarrh, which is at present in dispute. 4. It is well known how very closely some antitoxin rashes and erythema multiforme from other causes simulate morbilli. It is true that catarrh may be more or less completely absent, but still the rash itself may be so very suggestive that if one did not have these spots to fall back on, one would frequently on first seeing the patient be left in some little doubt about the case. Filatow's spots are invariably absent in these cases.

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case of morbilli at a period when catarrh is quite incipient; and the only reliable means of doing this which we at present possess is by means of these spots of Filatow's. Of the value of this method of eradicating morbilli from wards I can speak from personal experience, and in the case of schools I would suggest that when at any time it is found necessary to stamp out an epidemic, a daily examination for these spots in the mouths of all the scholars should be carried out in a good window-light, since it is an examination that can be very readily performed, and is the only method at our command which offers any decided hopes of proving effectual.

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Laugharne, Carmarthenshire.

LAPAROTOMY AND CLEANSING OF THE PERITONEUM IN A CASE OF TUBERCULOUS PERITONITIS.

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On Feb. 27th, 1900, I was called to visit a girl, aged seven years, who was too ill to continue her visits to the physician in town to whom she had previously been taken. I was told that she was suffering from "catarrh of the stomach."

The condition of the patient was as follows:—The abdomen was very tympanitic and resonant throughout. No fluid could be discovered. Apparently continuous with the edge of the liver was a mass which appeared to be a solid tumour within the abdomen; it extended in the line of the gall-bladder from the liver edge downwards to one and a half inches below the umbilicus, and then was continued across the abdomen to the opposite ribs at the same level, its margin being marked with four large sinuosities. The mass was smooth, resistant to the touch, and it could be grasped at the lower margin by the fingers, giving an impression of a solid tumourous mass. The skin over it was free and no movement in a vertical direction occurred in respiration. Percussion gave resonance over the whole area which was occupied by the mass. Two enlarged glands could be felt in the left iliac fossa. No signs of disease could be discovered in any other organ. There was occasional vomiting which would occur every third day or so. There was a good deal of flatulence and constipation and the stools were greenish and flocculent; they contained much mucus and were very offensive.

With regard to treatment, as the child's temperature registered nightly from 101° to 102° F. she was kept in bed and her bedroom was kept warmed and freely ventilated; she was given such light foods as bread jelly, yolk of egg, rusks, bread-and-milk, meat broths, meat juice, &c.; passive movements of the limbs with massage were performed daily; and castor oil in frequently repeated small doses was given for the constipation, with an occasional enema. The child improved to a certain extent. Many of her symptoms appeared to mend; she became less irritable and slept rather better, the sickness ceased, and the stools improved in appearance. It was, however, difficult to measure improvement in these matters and the measurable symptom, the temperature, showed a gradual average rise by the end of April. The outline of the tumour showed an advance in size to the extent of half an inch in two months. I therefore advised an exploratory laparotomy. The following was the average temperature for the five months:—March, morning, 97·6°; evening, 100·3°. April, morning, 99·5°; evening, 101·5°. May (operation on the 2nd), morning (?); evening, 99·3°. June, morning, 98·8°; evening, 99·6°. July, morning, 98·8°; evening, 98·9°.

On May 2nd chloroform was administered by Dr. James

Crombie, and, assisted by Dr. R. R. Law and by Mr. E. C. Stabb, whose kind offer to be present was gladly accepted, the abdomen was opened in the middle line for three inches immediately below the edge of the hard mass referred to above. Some sero-puriform fluid escaped. Digital exploration through the wound discovered extensive but weak adhesions, which were firmest towards the rim of the pelvis but were easily broken down. The tumour-like mass in the upper abdomen appeared to the fingers as a shield of tissue of an even thickness of three-quarters of an inch; it was smooth and resistant and was closely incorporated with the abdominal wall. The impression conveyed to the touch was that of a fibrous structure and it was doubtless a fibrous areola which had originated in the peritonitic inflammation excited in the neighbourhood of tuberculous nodules which would thus be included by the meshes of the inflammatory tissue. The peritoneum was everywhere studded with nodules and one of these was removed for examination from the serous covering of the ileum. The adhesions having been broken down the peritoneal cavity was thoroughly douched out with two gallons of normal saline solution by means of a Spencer Wells large-bore douching cannula, which was carried down with the finger as a guide into the pelvis and into every part of the abdominal cavity. A careful toilet with sponges on holders terminated the operation, and the wound was brought together in its deeper parts by buried sutures of fine silkworm gut and by ordinary silkworm gut for the skin.

The after progress of the case was quite uneventful. On the evening of the operation the temperature rose to 102·6° and from that time it was slightly subnormal for 10 days, after which it rose to 98·8° or 99·4°, at which it has remained since. The following is the report of the Clinical Research Association on the nodule removed: "This nodule shows groups of grey and caseous tubercles embedded in much young inflammatory tissue on the peritoneum. The giant cells are large and numerous."

Eight months have now elapsed since the operation, during which time every endeavour has been made to improve the condition of the child. Exercises after the manner of Mr. Bernard Roth have been employed daily; during the whole summer the child has lived an open-air existence and other rational measures have been employed, while good nourishing solid food has been given, with as much scalded cream as the child could take. The condition of the patient is such as to make the prognosis very hopeful concerning her ultimate recovery, providing one is given a free hand to interfere surgically as often as indication arises. The physical condition of the abdomen has in these five months become modified. The mass which formerly occupied a continuous area as described is now represented by a margin of the original mass next against the liver edge and by scattered masses mapped over the area previously occupied by the shield-like neoplasm. There are yet glands to be felt in both iliac fossæ, but their much greater size leads me to think, in the absence of temperature, that they are probably ensheathed in fibrous tissue. There is a small tuberculous nodule in the fold of the right buttock which has been present since April and which involves the skin. The general appearance of the child has quite altered. From being somewhat wizened and prematurely wise in face, action, and manner, she has plumped up and has become naturally mischievous and romping as a child should be.

In these cases delays have a dangerous end. There is unquestionably a more pronounced progression in gravity between serous and suppurative peritonitis than between serous pleuritis and empyema. Once the effused fluid has become puriform the prognosis as to recovery from operation must be quite a different matter from that of the same case in the serous stage, for the suppurative peritonitis includes a long history—firm adhesions, encysted pus, limited by anatomical boundaries whose resistance is lessened by the continued inflammatory processes, make up together a posse of difficulties not to be encountered with a light heart. To all surgeons accustomed to perform abdominal sections there can surely be no more disheartening condition than these lacunæ with washleather-like sloughy walls containing stinking acrid pus which in many cases are so numerous and so hidden by more superficial adhesions that the main difficulty lies in being sure that all such encystments have been exposed and cleansed. It appears to me that, given the presence of tuberculous-like masses in the abdomen and a nightly rise of temperature not mitigated by treatment and continuing for an entire month, the time has arrived for an