FIXATION ABSCESS.

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IT was in the year 1891 that Fochier, the well-known obstetrician of Lyons, was the first to suggest a new method of treating puerperal infections and generalised infections by the formation of "fixation abscess." A few medical men from Lyons and, later, a considerable number from Bordeaux followed in Fochier's footsteps. Professor Arnozan, who is a recognised authority on therapeutics, was attracted by the advantages of the Fochier method, introduced it to Bordeaux, and inspired his pupil, Jacques Carles, to publish a remarkable thesis.

The Paris school did not adopt the use of fixation abscesses, in spite of a few sporadic trials. But the fixation abscess owed its success to Netter, who acted as its sponsor. Since that time fixation abscesses are known and accepted by a considerable number of practitioners. The Fochier method is praised by some and decried by others. We have studied the works of Fochier, Arnozan, Carles, Chambrelent, De Vergey, Sabrazes, Fieux, Hirigoyen, Dieulafoy, Chantemesse, Rendu, Pic, Netter, Boiden, Bourret, Crey, Vergely, De Coquet, etc. We have induced fixation abscesses in our patients for a number of years, and we believe in the method *because it appears to be efficacious* when it is properly understood. *One must know its precise objective, the reasons for its use, the indications and the technique.*

The clinical manifestations of the fixation abscess are impressive. "Many generalised infections without important lesions are suddenly relieved as soon as the physical signs of a localised abscess become obvious." This observation was made by Fochier (*Lyon Médical*, 1891-1892, and *Bulletin de l'Academie de Médecine*, 1891). He had, in fact, noted that certain generalised infections suddenly improve when a localised pyogenic abscess, such as a breast abscess, a parametritis, or a suppurative arthritis appears. He then conceived the idea of artificially inducing fixation abscesses in cases of infection in which suppurative processes may occur and in which the surgical treatment of these suppurations can definitely assist in the cure of these cases.

Everyday experience showed the extreme importance of

https://doi.org/10.1017/S0022215100037191 Published online by Cambridge University Press

this interesting observation. Cases of generalised infection were cured by the fixation abscess; namely, by a limited suppuration induced when and where one desired (Jacques Carles).

In producing a fixation abscess Fochier had in view the fact that the microbes would be attracted into the purulent pocket. In point of fact the *modus agendi* is very complex. According to Jouin, the abscess appeared to act by virtue of the reabsorption of the essence of turpentine, which is looked upon as an antiseptic and oxidiser. According to other authors, it would be preferable to look upon it as a medium capable of diminishing, indirectly, morbid central congestions. According to Feuillet, the fixation abscess appears to favour the production of a large number of leucocytes from the normal blood stream. Thus aged leucocytes and those unable to cope with the antibactericidal contest would be replaced by leucocytes both younger and more virile. Besides, the leucocytes which were imprisoned in the purulent pocket would undergo a process of leucolysis. The leucocytic products—especially the albuminoses — would be reabsorbed. There would then follow an alteration in the composition of the blood, which would tend to increase the bactericidal powers of the blood serum.

J. Carles is of the opinion that during the course of the majority of infectious diseases there is a marked increase and an excessive wastage of leucocytes. The rôle of the leucocytes is to eliminate and fix the microbes with their toxins. Many of them are overcome, others survive, but the latter are in excess. They all block up the system and are thus able to induce inflammatory reactions and give rise to unexpected suppurations. Liberation of the white cells from the blood should precede these localisations. The fixation abscess is the method of choice for bringing this about. It is in this locality that the excess of leucocytes, the toxins and the waste or by-products which they contain are discharged. Moreover, in the course of acute infections, germs circulating in the blood tend to abound and attack in the areas of least resistance. They are, therefore, also attracted towards the fixation abscess. The fixation abscess provides an important means of diminishing sepsis and eliminating toxins. Even if proof of the fixation of the microbes in the abscess has not been arrived at, this is not so as regards the toxins. J. Carles has inoculated animals with

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poisons which are not easily detected. He has induced fixation abscesses in these animals and has noted that the pus in these abscesses contained more poison than was found in any of the viscera. One asks oneself, "Why then is the pus in fixation abscesses usually sterile?" J. Carles' reply to this is that the essence of turpentine remains in the abscess area and that, thanks to its antiseptic action, it kills the microbes in the vicinity. Besides, the pus in a fixation abscess is a very poor culture medium. Whatever the explanation may be, none of these hypotheses is in itself fully satisfactory and, at the present time, the *modus agendi* of the fixation abscess is not precisely known.

Definition.—The fixation abscess is a method, the object of which is artificially to provoke by means of an irritant (essence of turpentine) the formation of an abscess in the subcutaneous cellular tissue. It is an artificial pyogenesis.

Technique. — After many experiments Fochier preferred the essence of turpentine. He considered that the formation of abscesses was more constant when the essence was kept for a long time in bottles. Indeed, he used to advocate an essence "vielle au soleil." Essence of turpentine is easy to obtain and superior to all other pus-producing agents.

The normal dose for adults is a cubic centimetre. In the child the dose injected should be minimal, starting from 2 to 3 drops in the suckling to ½ c.c. in the child. The local reaction is more intense and more diffuse in the young, and one must go gently with children and diminish the dosage. Most fixation abscesses are carried out in the *antero-external region of the thigh*—this is the usual place. Now Bourret notes that this is not Fochier's technique, and that it is wrong. The cellular tissue in the antero-external region of the thigh is not very thick, and the primary injection is very painful; moreover, in many cases the abscess does not appear to have sufficient space under the skin to develop. The abscess breaks through the integument before reaching the stage of full suppuration—that is to say, before having produced its effect.

In our opinion the criticisms which have been directed against the usual situation of fixation abscesses in the antero-external region of the thigh are rather exaggerated. In any case, our practice has shown that we have always injected the essence of turpentine into the antero-external region of the thigh without meeting with any difficulties. But, whilst acting

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as above, we do not follow Fochier's rules. The seat of election, as recommended by Fochier, for inducing a fixation abscess is the abdominal wall in the centre of a line between the costal margin and the umbilicus. This site of election deserves to be known and remembered, says Bourret, because it has none of the disadvantages of the antero-exterior region of the thigh route. In the situation of the abdominal wall the subcutaneous cellular tissue is especially copious and the skin is freely movable on the subjacent tissues. The consequence is that the subcutaneous injection can be made very accurately in this situation, and this point is of great importance in ensuring that the injection should be as painless as possible, and that there should be no scarring, no premature spontaneous discharge, nor an extension in depth of the suppuration. This last complication, which has been reported in a few cases, is the only contra-indication to the abdominal wall as the site for inducing the abscess; but this accident, though very rare (since among the very great number of fixation abscesses induced to date, only one or two cases of this accident have been recorded in the medical literature), should, in our opinion, definitely be avoided if care is taken not to allow any of the caustic fluid to penetrate beneath the aponeurosis. With this object in view, one must raise a fold of skin, draw it towards oneself in order to separate it from the underlying tissues, and then plunge the needle obliquely into the base of the fold. To make still more certain, before pushing the plunger home, one should ascertain that the needle is definitely mobile in the cellular tissues.

A further precaution which we have found useful in diminishing the pain of the preliminary injection is to be careful to use a needle which has not previously been dipped into essence of turpentine. One should be careful, therefore, in charging a syringe by aspiration not to use the same needle for the injection, so that the injected tract is not impregnated with an irritant fluid which, besides causing pain, might induce a skin reaction which sometimes causes premature opening of the abscess. The turpentine injection should be made in the subcutaneous cellular tissue midway between the skin and the aponeurosis. If the injection is made too close to the former, one may produce a necrosis of the skin and a wound which takes a long time to heal. In injecting beyond the aponeurosis one produces serious muscular damage and adhesions between the cutaneous and muscular scars. When the injection is completed the patient

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feels a burning sensation for a few minutes. Later, the pains are of a shooting character and may be relieved by the application of an emollient and hot compresses. This is the beginning of the local inflammatory reaction. At the end of thirty-six to forty-eight hours the seat of the injection becomes puffy, with redness of the skin. There is tenderness on palpation, the puffiness becomes more defined in the succeeding days, and about the fifth or sixth day the usual physical signs of an abscess are present. It is customary to say the abscess "takes." It is unnecessary to state that the time of ripening of the abscess and the extent of the physical signs vary with each patient. No hard and fast rule can be laid down. If, on the other hand, the abscess does not "take," there is but little pain at the site of the injection. The puffiness is very slight and the essence of turpentine injection gives rise to a very feeble reaction. In these cases in which the formation of an abscess is not obtained by the first injection, we usually repeat the injection after forty-eight hours, in the opposite thigh. It does not appear to be expedient to increase the dose. It is better to make a third injection later if it is thought to be necessary. In actual practice there is practically never any need to induce more than two fixation abscesses. Indeed, either the abscesses "take" and there is no need to repeat, or they do not "take," and this setback augurs a gloomy prognosis which is soon followed by death. *The value of fixation abscesses as a means of prognosis is considerable.* It is easily observed that the course of the abscess runs parallel with the course of the disease. The clinical characteristics of this process are very interesting, as all those who have dealt with fixation abscesses agree. Prognosis of the disease can, in most cases, be based on the developments of the fixation abscess. When the abscess does not "take," the prognosis is very bad, but one must not exaggerate and say that it is always fatal. Likewise, when the abscess "takes," as a general rule the prognosis is favourable. The value of the fixation abscess as a help to prognosis deserves to be noted, if it is understood that a few exceptions may occur.

When should the Abscess be Opened?

It is not easy to give a definite reply to this question, because patients do not react in the same way. The abscess should be incised when it is obviously ripe and fluctuation can definitely be obtained. Sometimes, however, fluctuation is

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not easily obtained on account of the œdema. One must then incise at the most favourable opportunity, neither too early nor too late. If incised too early, one finds an abscess only partly matured; no pus will be found, but only some necrosed cellular tissue, and, besides, too early an incision might arrest the development of a favourable process which was about to take place. If the incision is put off too long, trouble may arise, for if an outlet is not given to the pus its collection may cause serious damage by burrowing. As a general rule, the abscess should be incised between the sixth and the eighth day. A proper surgical technique should be employed. The incision must be free and must remain in the most dependent position, so as to ensure efficient drainage and the complete evacuation of the abscess contents, in order to avoid painful and hæmorrhagic post-operative compressions.

Leriche, in 1925, in the *Journal de Médecine de Lyon*, advised the following line of action:—"When the time has arrived for opening the fixation abscess, instead of making a small incision and evacuating the pus by expression, one can cure the patient immediately by a quite small intervention." As these abscesses are aseptic, one can without any risk open them throughout their length, clean away the pus, excise the necrosed walls and, when the wound is clean, close the wound completely, leaving a very small drain. Healing is obtained rapidly by first intention.

Indications: Contra-indications: Results.

If the infection is slight it is useless to have recourse to the fixation abscess. If the infection is very severe, and if the patient's general condition is very serious and all the defensive agents are exhausted, it is useless to employ this treatment. The fixation abscess is not a form of treatment for moribund patients. The clinical indications for fixation abscess are as follows:—

1. **Severe forms of pneumonia and broncho-pneumonia.**—Turpentine injections appear to mitigate the illness and affect its progress favourably.

2. **Puerperal fevers.**—A number of obstetricians employ this treatment. In a recent paper Vignes has stated his views. He writes: "I use a fixation abscess every time I have to treat a severe puerperal infection. I use it early in the illness and not as a method of treatment for very severe cases."

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3. **Cerebrospinal meningitis** which does not respond to serum therapy and *severe cases of epidemic encephalitis.*

4. **Severe cases of poisoning,** such as by lead, mercury and mushrooms. (Pic and J. Martin.)

5. **Severe forms of influenza** with pulmonary complications are favourably influenced by turpentine injections. De Coquet published in 1919 a summary of 33 fixation abscesses carried out during the severe influenza epidemic. These 33 observations showed 24 cures and 9 deaths, and as De Coquet had recourse to fixation abscesses only in very severe cases, the percentage of cures would appear to favour De Fochier's method. The abscess failed to "take" only in the 9 cases which proved fatal.

6. **Typhoid fevers.**—There is no need to cause a fixation abscess in the early stages of an illness such as typhoid fever, but Fochier in 1892 had proposed turpentine injections on account of its favourable effect on certain complications. M. A. Pic is of opinion that one should make use of the fixation abscess when the intestine is particularly attacked by the infection and a hæmorrhage caused, or when an inflammatory, or even a suppurating process occurs in one or other of the organs or tissues of the body, or when the typhoid infection reveals itself only by severe general symptoms, giving the clinical picture of septicæmia. M. A. Pic has himself recorded eight recent cases which had been treated by this method only at a late stage and when the disease was very advanced. In all these cases the fixation abscess led to a rapid improvement and was soon followed by recovery. He therefore maintains that in severe typhoid septicæmias which do not yield to the usual therapeutic measures, the fixation abscess can often, but not always, be the dramatic success with which most clinicians of to-day credit it in other pneumococcal septicæmias.

7. **Severe septicæmias and septico-pyohæmias.**—It is in these conditions that the fixation abscess gives its best results. In cases of streptococcal septicæmia of otitic origin, as soon as the condition is serious, we are in the habit of inducing one or more fixation abscesses. On the whole we have had to congratulate ourselves on this line of treatment. We have satisfied ourselves that the injection of the essence of turpentine has been the starting-point of a rapid improvement in the condition of the patient.

To sum up:—Fixation abscessses are useful chiefly in severe infections. In short, the method should be used only exceptionally; it should be used only after careful consideration and demands a precise technique in a few rare but well-defined cases. For myself, I will repeat what I stated in the beginning

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of this article, the fixation abscess gives one the impression of being efficacious. It is not dangerous, and appears to cure certain patients. There are not many lines of treatment of which as much can be said. And those are the reasons why, for a number of years, I have put my faith in the fixation abscess.

Der Verfasser bespricht die sogen. Fixationsabszesse (künstlich erzeugten Eiterungen) und gibt die Einzelheiten der Technik an, die heute zu ihrer Herbeiführung verwendet werden. Gewöhnlich wird die vordere Gegend des äussern Schenkels dafür ausgewählt. Der Wert als Hilfsmittel für die Prognose wird besprochen und die Indikation und Kontraindikation, sowie die Ergebnisse werden mitgeteilt. Der Verfasser ist der Ansicht, dass diese Abszesse hauptsächlich bei schweren Infektionen nutzbringend sind und nur ausnahmsweise und nach sorgfältiger Ueberlegung angewandt werden sollten. Bei richtiger Technik sind sie gefahrlos und in ausgewählten Fällen sicher wirkungsvoll.

L'auteur discute l'histoire de l'abcès de fixation, et décrit la technique qu'il emploie maintenant pour les provoquer. La région de choix est la partie antero-externe de la cuisse. Il discute la valeur de l'abcès de fixation en tant que moyen de pronostic, donne les indications et les contre-indications, et les résultats qu'on peut en attendre. Il conclut que l'abcès de fixation est utile surtout dans les infections graves, et qu'il ne devrait être employé qu'à titre exceptionnel et après étude sérieuse du cas. Avec une bonne technique il ne presente aucun danger, et a une réele efficacié dans des cas particuliers.

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