

General Reflections on Fistulae, and on the Formation of an accidental Membrane in their Course; followed by some Observations collected from the Clinical Lectures of Professor DUPUYTREN on the different Species of Maladies of this kind, and on the particular Mode of Treatment adapted for them. By M. BRESCHE, Prosector to the Faculty of Medicine of Paris, and First Clinical Assistant at the Hôtel Dieu,

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WE passed over this Memoir in our History of the Progress of Medicine, from the consideration that it comprised but little information of absolute novelty; but, on further reflection, we have judged that it may prove useful to many of our readers, as a development of some opinions advanced by Mr. HUNTER, which do not appear to have been sufficiently reflected on by surgeons in general.

"The term *fistula*, in its more general acceptation, designates a deep sinous ulcer, with callous edges, communicating with the external surface or an internal cavity by means of a narrow opening; and from which a quantity of purulent matter is evacuated disproportionate to the extent of the ulcer. As soon as matter of any kind, whether a recrementitious, excrementitious, or gaseous, fluid, from causes which it is unnecessary to consider in this place, happens to desert its natural course, the tissue in which this matter is diffused becomes the seat of inflammation. This inflammation is violent in degree in direct relation to the more or less irritating qualities of the fluid, and the excitability of the parts with which it has accidentally come into contact.

In consequence of the irritation produced by the presence or passage of this fluid or gas, which acts as a foreign matter, suppuration in the parts subject to its influence becomes established. The abscess opens sooner or later, either externally or into an internal cavity, according to varieties in the natural efforts or the artificial measures that have been employed. The purulent matter evacuated always presents some of the characters of the liquid that determined its formation, which escapes in combination with it, in a greater or less quantity. The continual passage of these fluids produces, in the surfaces of the artificial passage thus established, a permanent irritation that is sufficient to prevent the cicatrization of its parietes.

The presence of an animal fluid in any part not destined by nature for its reception, is then the cause both of the establishment and of the perpetuation of fistulous canals.

We shall not be surprised at such a result, if we reflect that milk, a fluid apparently so mild and incapable of producing irritation, induces violent inflammation, often terminating in supuration and even gangrene, when it is injected into the interstices of the cellular membrane. Thus, a substance which, when applied to the mucous membrane of the digestive organs of an infant, only causes the degree of irritation necessary to affect its assimilation, becomes, in a part, the sensibility of which has not a due relation to its properties, an active morbid cause, in consequence of the extreme degree of irritation that it provokes.

There is no tissue nor organ of the animal economy, in the substance of which fistulae may not be found. Thus, we have seen them traverse muscles, aponeuroses, and tendons, as well as the cellular and cutaneous structures. The viscera are not exempt from them; we frequently witness them in the parenchymatous organs, and occasionally in the brain.

It is, however, the cellular tissue in which they are most frequently observed, either in consequence of the ready passage it affords for liquids, or from the general distribution of this structure throughout the body. This tissue is, indeed, universally diffused; it is interwoven throughout every part, and enters, as an element, into the composition of every organ. In some instances, it serves as a medium of connexion between several other tissues, which by their union compose a single organ; in others, it establishes limits to the respective viscera, muscles, &c. and supplies them with particular or common envelopments. It is very abundant about the excretory canals, around which it forms cellular sheaths; and presents varieties in its particular texture according to the functions it is designed to perform. For instance, were fat to accumulate in the vicinity of the mucous canals, it might lessen or totally obstruct their passage; and therefore it is of a filamentous texture in those situations, not having that degree of laxity which admits of the accumulation of animal oil in its interspaces. In consequence of such a disposition, that tissue favours the formation of excretory canals, and does not offer obstacles to their dilatation.

As soon as an animal fluid, having deserted its natural course, becomes accumulated or passes into this tissue, all the phenomena ensue that accompany the irritation which we have described. But this irritation also causes a remarkable change in the nutritive functions of that structure; the surface of it which is in contact with the effused fluid becomes converted into a membrane very analogous to the common mucous membranes.

After the irritation has existed for a considerable period of time, and has attained a greater degree of intensity, it also induces a further change in the accidental membrane we have described, which possesses that character ordinarily termed *callosity*.

According to Dr. BAILLIE,* the celebrated HUNTER long since observed, in his *Surgical Lectures*, "that the internal surface of *fistulae* have an appearance similar to that of a secretory membrane, and which may be compared with that of the urethra.† This important observation seems to have had little influence on the minds of practitioners for a considerable period; but the great progress that has been lately made in pathological knowledge, and the frequent opportunities possessed of examining dead bodies, have verified and generalized the proposition of the English anatomist."

I shall adduce the following as one among the numerous facts which tend to substantiate the above statement:—

A young man, 20 years of age, had for some days perceived an indolent fluctuating tumour in the left groin, without discoloration of the skin, which disappeared after he had remained for some time in the horizontal posture. It was evidently a collection of matter transmitted to it from some other part. It burst spontaneously, giving exit to a considerable quantity of fetid purulent matter. The pains which the patient had suffered about the vertebrae before the formation of the tumor in the groin, and which continued after it had opened, with the nature of the matter evacuated, clearly pointed out the primary disease to be caries of the vertebrae. The patient lived about two months after this time. The following were the appearances noticed on the examination of the body:—The lower dorsal and two upper lumbar vertebrae were in a carious state. A membranous canal, about an inch in diameter, extended from that part to the opening in the groin, the internal surface of which was of a bright red colour. Blood could be squeezed from it by pressure, the same as from a mucous membrane in a state of irritation. The surface of this canal was covered with

* See his *Morbid Anatomy*.

† "We find something analogous to this in the *Treatise of Mr. Hunter on the Blood, Inflammation, and Gun-shot Wounds*; but there is a wide difference between a mere assertion and the demonstration and complete history of the organization of a part. However, we shall transcribe the passage referred to:—

"I believe that a deep wound, such as that from a gun-shot, on proceeding to suppuration and forming a fistulous ulcer, becomes in some degree analogous to an excretory canal, having the power of producing peristaltic motions from the bottom to the external opening."

purulent matter, which was furnished both by the parts about the carious bones and its own internal membrane that was irritated by the constant passage of the acrid purulent matter from the former source. It was easy to separate the artificial membrane which formed this surface, in the same manner as the internal membrane of the stomach may be rendered distinct, by dissection.

From the preceding observations, and other analogous considerations, it would appear that there can be no doubt respecting the nature of the adventitious membrane formed in fistulae. If we now revert to the general theory of fistulous passages, we shall be obliged to admit that the present state of our knowledge of pathological anatomy would lead us to consider these diseases as dependant on the formation of an accidental tissue, which, by its organization, properties, and functions, has the strictest analogy with the natural mucous membranes.

Let us, then, enter into a general consideration of the seat, development, organization, properties, and functions, of this adventitious mucous structure.

1. It has been seen that fistulae may be formed in all the different tissues of the animal economy, but that they most frequently are seated in the cellular membrane, which is that most extensively distributed throughout the body. This membrane is found thickly dispersed about the margin of the anus, in the perinaeum, around the stenoid duct, &c.; which are the situations where fistulous ulcers most commonly appear.

2. The formation of the adventitious mucous membrane takes place, with more or less rapidity, in a direct ratio to the greater or less violence of the irritation of the tissue throughout which the extraneous fluid is diffused. The irritation is, however, not proportionate in extent to the apparent properties of the effused fluids; and it also varies in consequence of the different degrees of susceptibility of the parts affected.

The cellular membrane, in all cases, assumes in the first instance an ulcerated aspect, and furnishes a greater or less quantity of purulent matter. After this, it gradually evinces some peculiar character. It becomes red, in consequence of increased vascularity; its vital properties are exalted; the nutritive functions of the parts are changed; its density is augmented; and, finally, its appearance has become entirely changed. By means of these successive modifications, it assumes the state of a red villous membrane; differing not only from the cellular tissue, which is arranged in areola; and the serous membranes,

which are diaphanous and constantly disposed in the form of close pouches; but also from all the other species of structure that enter into the formation of the animal economy. In proportion as it is developed, it becomes more and more similar to the mucous membranes. The pus furnished by its internal surface is succeeded by a mucous secretion, which is more abundant as the new membrane produces less of purulent matter. A period at length arrives when it ceases to form the mucous secretion, which may be readily discovered by preventing the fluids that originally induced it from passing through the canal that it forms.

This canal, by means of its internal surface, is connected with these fluids, and the mucous secreted by the adventitious membrane; on its external surface, it forms a boundary to the surrounding parts, from which it is, however, separated by a layer of cellular membrane that varies in point of thickness. Superiorly, it commences from a natural excretory orifice, or some surface presenting the conditions proper to constitute a fistulous ulcer; and, lastly, it constantly terminates inferiorly on some one of the cutaneous or mucous surfaces.

3. The organic elements of the adventitious membranes of fistulae have the greatest analogy with those of the mucous membranes. This membrane is separated from the surrounding parts by a greater or less extent of cellular tissue, which may be termed *sub-mucous*; and it contains a portion of that structure in its composition, as may be demonstrated by maceration. Its redness discovers the presence of a large quantity of blood-vessels that terminate on its surface by exhalants, the existence of which is shown by the secretion of fluids. Since nutrition is performed in this membrane, we cannot doubt that it contains absorbent vessels. But it is only by means of new researches that we shall be able to determine, in a precise manner, the respective proportions of the different vessels that enter into its composition.

Notwithstanding these traits of analogy, the adventitious membranes of fistulae differ from the natural mucous membranes in so remarkable a degree, as to prevent the admission of their perfect identity.

In the first place, the adventitious membrane wants that cuticle that is observed on the exposed surfaces of the mucous membranes of the lungs, digestive organs, &c. Besides which, it does not contain those glandular bodies, termed *mucous follicles*, that are dispersed throughout the primitive mucous membranes, and secrete a viscous fluid destined to lubricate their surfaces.

These are not the only differences of organization noticed by the attentive observer between the accidental and natural mucous canals. There is a constant tendency to the obliteration of the former, as soon as the passage of the fluid through them is intercepted; whilst in the latter, under similar circumstances, such an occurrence is never, or very rarely, observed. For example, compare an old fistula, of whatever kind, provided it is still susceptible of being cured, with what is observed in cases of preternatural anus, and these different results will be very evident. We shall sooner or later succeed in effacing a fistulous canal, after having diverted from it the passage of the fluids by which it was produced, (the effecting of which, we may observe in passing, is the basis of the treatment of those diseases; but, in the preternatural anus, on the contrary, although the whole of the faecal matter may pass through the accidental opening, the inferior part of the intestinal canal does not become obliterated; but continues to furnish a greater or less quantity of mucous matter.

This difference with respect to the facility of obliteration of canals formed by accident, and the almost constant impossibility of effecting it in those which are lined with natural mucous membranes, shows what little expectation should be formed of the permanence of canals formed in these tissues; and how preferable are natural to artificial views in the treatment of many diseases of those parts: that is to say, those which re-establish the primitive course of fluids, to those which effect new and artificial modes of transmitting them. It is in consequence of this that passages formed through the prostate gland, by means of conical sounds, only remain as long as they are kept open by the presence of the instrument. It is from this, also, that practitioners have ceased to employ the methods of Woodhouse, Hunter, Monro, &c. for the treatment of fistula lacrymalis, and adopt that by which they endeavour to restore the natural passage of the tears. However, nothing is more common than to witness the return of that disease, when it has been supposed to have been cured by a long-continued use of tubes, bougies, &c.; but this arises from the disorder, in these cases depending less on a contraction of the soft parts, or excretory ducts, than on that of the hard parts surrounding those passages. What proves this is, that the insertion of metallic canulae, which offer more resistance to the bony parieties than the mucous membranes, is sufficient for a prompt and radical cure of a malady too often rebellious to all the efforts of the most able surgeons, before they had recourse to canulae that were permitted to remain in the parts, the advantages of which were

long since pointed out by M. Dupuytren; and by means of these he has cured many hundreds of cases, for which all the ordinary methods had been employed in vain.

4. The vital properties and functions of the adventitious membrane formed in fistulous passages, much resemble those of the tissue to which we have compared it with respect to its organization. This membrane possesses various degrees of sensibility. Sometimes the introduction of a probe or sound into a fistula is productive of severe pain; whilst, at others, the presence of those instruments is more readily borne. We have observed that this membrane secretes a mucous matter, which at first is mingled with pus, but afterwards flows away perfectly pure; and finally ceases to be secreted, if we divert from it the fluid or other matters that had induced it: were it not for this, we could not hope to effect the obliteration of the fistulous canal.

After having given a rapid, though exact, history of the internal membrane of fistulae, it remains for us to ascertain, more correctly than we have hitherto done, the nature of the *callosities*, the production of which we have attributed to the permanence of the local irritation, kept up either by means of the fluid that constantly passes over the membrane, or by various external causes,—such as certain topical applications, exercise on horseback in cases of fistulae about the anus and urinary passages, &c.

These *callosities* have a whitish appearance, and seem to be the result of congestion of colourless fluids in the membrane and subjacent cellular tissue. Formerly they were considered to be of a schirrous, or even cancerous, nature; and these erroneous notions gave rise to injurious measures in the surgical treatment of this disease. Experience has shown that rest, emollient applications, and appropriate dressing carefully applied, will, in the greater number of instances, effect their removal. According to the present received ideas respecting cancerous affections, and the treatment that should be opposed to them, it will be readily perceived that they differ in every respect from the callosities of fistulae.

By a judicious use of the measures I shall presently point out, we may almost always spare the patient an operation, which, although generally exempt from danger, is productive nevertheless of severe pain, and frequently gives rise to very unpleasant consequences. I allude to the treatment of fistula by extirpation, a cruel operation no longer practised, or at least only adopted in places remote from the centres of acquisition

in knowledge, and by persons governed by prejudices, or ignorant of the progress of the art of surgery.

A simple operation is now generally substituted in the place of amputation, which is executed in various ways, subordinate to accidental circumstances and the particular inclinations of the surgeon. These consist, in all cases, in re-establishing or dilating the natural passages, in dividing or compressing the fistulous canal throughout its whole length, so as to give a free issue to the pus, and to oppose the passage of liquids, aeriform matters, or fluids, in the accidental canal; the bottom of which should be the first part that should become united. They have also another object, that of removing external extraneous substances, and favouring the separation and entire removal of those formed in the diseased tissues.

Fistulous passages differ considerably, according to the laxity, organization, and nature, of the cellular tissue in which they are developed. They vary also in the disposition and direction which they assume. Thus, they do not always extend in a right line; and often form numerous sinuses, terminating in more extensive cavities. The accumulation of fluids in the latter gives a complicated character to the disease, and renders the treatment of it tedious, in consequence of the difficulty experienced in the discovery of these cavities, and the means of arriving at them. These complications depend on the same causes as the principal disease. The retained fluids, also, according to their nature, are productive of inflammation, and the numerous and various consequences that the practice of surgery daily offers to our observation.

We may, I believe, conclude from what has been stated—

1. That fistulae are accidental canals, kept up by the continual passage of excrementitious substances, purulent matter, the liquids coming from secretory organs, or gaseous fluids, which produce irritation of their surfaces and prevent their adhesion.

2. That one of the extremities of fistulous passages constantly receives or produces the cause of the irritation that perpetuates their existence.

3. That it is to the knowledge of this cause that the practitioner should direct his attention, if he would employ a rational and efficacious mode of treatment.

4. That there is always the formation of a tissue of a particular nature in fistulous passages, more analogous to the mucous membranes than any other species of structure.

5. That, in some cases, this tissue is the only existing organic alteration; and this is what is commonly observed in simple fistulae.

6. That, in many other cases, there exists at the same time degeneration of the cellular structure and adjacent parts, a degeneration which we should be careful not to consider as the cause of the fistula, nor to confound with schirrous, cancerous or carcinomatous, affections, from which it essentially differs.

7. That the removal of the parts thus degenerated will not remedy the cause of the fistula; it only destroys one of its effects that would generally disappear spontaneously after the cause of it had ceased to exist.

8. That the indications for the treatment of this malady are to prevent the formation of pus, or at least the flow of it through the fistulous passage; to re-establish the course of the fluids or secretions through their natural channels; and to prevent the escape of air by the opening that communicates with one of the extremities of the fistula.

9. Lastly, that, after the causes are removed, we may obliterate the fistulous passage, by dividing it throughout its whole extent; by the use of compression; or by exciting, by means of caustics or irritating injections, such an inflammation of its parietes as may induce their mutual adhesion."

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Obstetrical Observations and Reflections; by W. HAMILTON, M. D.

[From the London Medical and Physical Journal.]

ON perusing the critical department in the 237th Number of your useful Journal, I was much pleased with your notice of the excellent report of Dr. Clarke, of the Lying-in Hospital, Dublin. His practical observations on the result of upwards of ten thousand cases of midwifery are valuable indeed, and ought to make a very deep and lasting impression on the junior practitioners of that useful art; particularly at a time like the present, when unfortunate cases are more frequent than has been observed for years.

In his remarks on ordinary cases of labour, he is persuaded that it greatly contributes both to the safety of the mother and child, to allow the uterus *gradually* to empty itself during labour; and, with a view to secure its more perfect contraction, he has been for years in the habit of pursuing the fundus uteri with *the hand on the abdomen*, till the foetus be expelled. Such pressure also tends much to prevent profuse hæmorrhage, syncope, or retained placenta, &c. Here, in conformity of this