EFFECTS OF HOSPITALISM

UPON THE

MORTALITY OF LIMB-AMPUTATIONS,

ETC.

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ALONG with many other readers of the BRITISH MEDICAL JOURNAL, I feel greatly indebted to Mr. Holmes for the able letter and kindly criticisms which he has published in the last number, upon "Hospital Mortality".

He speaks of my propositions regarding the mortality of limb-amputations in large and Metropolitan hospitals, when compared with the same amputations in private, provincial, and country practice, etc., as "startling." The proportion in favour of the success of these operations in the country is greater than I myself expected when I began the inquiry. When the statistics that I have collated are published, I shall probably take occasion to discuss several minor points alluded to by Mr. Holmes.* In the meantime, I would make one or two remarks in reply to some of his chief observations.

1. When I stated the proportion of deaths after limb-amputation in private rural practice as about one in every nine operated upon, and the proportion of deaths in the practice of our large hospitals as about one in every three operated upon, Mr. Holmes makes my argument run on thus. "The proportion of deaths in the former class is only one-third of the latter class. Therefore, the balance of deaths is attributable to the construction of the hospitals in which the deaths occurred."

This, however, is not exactly either the course of my reasoning, or my deduction. There are causes existing which we need not here discuss; and which render, for example, parturition a more dangerous and fatal process in the population of London than in a population of similar extent in the country. But I certainly believe the amputation mortality in Metropolitan hospitals and in the country to be chiefly owing to the present system and construction of our large hospitals, because I can detect no other adequate cause for the "startling" dissimilarity of results between them. The severity, for example, of the cases operated upon will not account for the difference. There is a larger percentage of primary amputations—and consequently of amputations of the more dangerous class—in country practice than in the practice of our large hospitals. The supposititious difference between the rustic and urban constitution of the patients will not explain the dissimilarity; as some large hospitals have their operative cases in great quantity from the country; and they bring, of course, their country constitutions with them. Besides, during the late Danish, American and German wars, the diseased and wounded soldiers, placed relatively in palatial hospitals, and in tents and huts like country cottages, recovered far better and quicker in the latter than in the former, but the "constitutions" of these two sets of military patients were surely alike; etc.†

2. In his letter, Mr. Holmes suggests, in reference to the results of limb-amputations as a surgical test, that in these amputations the death rate is "a very fallacious test of hospital salubrity" as between different hospitals; and much more "between hospital and private practice." However he may object to this (the best of all surgical tests) theoretically, he, himself, has used it practically and effectually; for, in the admirable Report on Hospitals, drawn up by him and Dr. Bristowe for the medical officer of the Privy Council, a table is given (copied from the French official archives) of the results of amputations of the thigh, leg, arm, and forearm, in the hospitals of Paris during the single year 1861. Of one hundred and two amputations performed in the different Paris hospitals during that year, sixty-eight proved fatal, or one in every one and a half of the patients died. This mortality is double that of our large and Metropolitan hospitals in this country, for, in them, only about one in three die. When treating of these "startling" death-rates after amputation in the Parisian hospitals, Mr. Holmes and Dr. Bristowe significantly and correctly observe, "*The death-rates (in Parisian hospitals) are evidently enormous, and surely not to be explained by differences either in the constitutions of those operated upon, or in the nature of the injuries and diseases for which they were admitted.*" I confess that

I know no valid reason whatsoever why I should not turn round and speak in exactly the very same terms of the high amputation-mortality of our large British hospitals (as compared with private country practice), and observe, "the death-rates (in large British hospitals) are evidently enormous (as compared with the same operations in the country), and surely not to be explained by differences, either in the constitution of those operated upon, or in the nature of the injuries and diseases" for which they are brought under the amputating knife.

3. Mr. Holmes thinks that I would have rendered my conclusions more probable if I could have shown "either that the death-rate after amputation in country hospitals was higher than in ordinary country practice among the same class of the population; or that amputations may be practised in large towns in the patients' own dwellings, or other private houses, with more impunity than in hospital."

With a view to the latter idea, I formerly suggested the returns of Dispensary Surgical Practice (See *Transactions of the Social Science Association* for 1867, p. 115). But I am not sure as to finding sufficient data. Could any of your numerous readers assist in furnishing them?

The data from country hospitals, suggested by Mr. Holmes, appear to me to exist already in his own published Report on Hospitals. He and Dr. Bristowe have tabulated, as surgical tests of salubrity, the amputations of the limbs, collated for one or more years, from "12 metropolitan, 23 provincial, and 43 rural hospitals respectively." On calculating, some time ago, the data thus offered regarding the amputation death-rate in these three classes of hospitals, I found amputation of the limbs to be fatal in the metropolitan hospitals in about 1 in every 3 cases; in provincial hospitals in about 1 in every 4; and in rural hospitals in about 1 in every 5½. The 1600 cases reported to me of these amputations in provincial and rural private practice have a much smaller death-rate than in the "rural hospitals" of Mr. Holmes's classification; none of which hospitals, however, have less, I believe, than 50 beds, and some have upwards of 200.

What is the death-rate after amputation in our "cottage hospitals"? I cannot answer the question. Can any of your readers give a reply?

4. The idea of changing our hospitals, in order to increase their salubrity and utility, from palaces—containing aggregations of sick in each flat—into wooden, or brick, or iron villages, is one which I advocated and published above twenty years ago, and have often talked of and discussed since that time. But in this country it has, till lately, met with little support. Since the German War, however, the same idea has been reduced to practice to a small initial extent in that country, in consequence of military exigencies having obliged the authorities to place the sick and wounded in wooden and other temporary buildings, which were found to be much more salubrious than their mansioned and palatial hospitals. To-day I have a letter from Professor Gurlt, of Berlin, in which he states, in regard to the present use of huts, cottages, or tents around some of the chief hospitals in Germany, "They are much in favour with us, because they answer excellently well, and give excellent results. Besides three large hospitals (two civil and one military) in Berlin, they are used in Leipsic, Heidelberg, Darmstadt, Frankfort, Kiel, and other places. There is now a wooden double-walled hospital barrack here at the Charité Hospital, and, as far I know, also at Leipsic, in constant use summer and winter, heated of course in the latter by large stoves." During the late American War there were above 200 temporary hospitals erected, containing above 130,000 beds; more than one million patients were treated in them; and the Surgeon-General to the Army of the United States, Dr. Hammond, declared that they were found "far healthier than permanent buildings." Why should we reject in civil practice means found so much better and healthier in military practice?

If hospitals are still to be built upon a large scale, perhaps means may be devised to invest them with greater safety by reducing them far more to the character of separate cottages and tenements, by each ward or room being provided with a ventilation separate and distinct. This has been already accomplished in the construction of some of the new blocks of tenements for artisans lately reared in London and elsewhere. But in our large hospitals, as at present constructed, the commixture of the common and contaminated air in wards, staircases, corridors, etc., utterly prevents this desirable consummation.

In one of the London medical journals I have been accused of bringing forward this subject in too "fierce" and "intemperate" a manner. I am not aware that I have ever used a single fierce word, or thought one intemperate thought upon the matter. On the very contrary, I have ever felt deeply both the vast gravity of the question and the great responsibility of it. The same anonymous author (writing in a very different spirit from Mr. Holmes) doubts if I have read the report of Mr. Holmes, but I have quoted it in the letter which he criticises, and I fear, therefore, he never perused the letter which he professes to criticise; and he implies to his readers that I have written

* In reference to these minor statistical points, let me here, in self-defence, state that several of them long ago formed a subject of study with me.—See an essay published by me in 1847, on the *Value and Necessity of the Numerical Method of Investigation as applied to Surgery*.

† See the reports of Stromeyer, Fischer, Esse, etc. Besides their superiority in surgical cases, Boerwindt shews their great success and value in typhus, etc.

"nonsense" about the Lariboisière Hospital, of Paris; whilst in anything I have written on the present subject I have never even mentioned or alluded to the Lariboisière till now. But Mr. Holmes has described it in his report as one of the largest hospitals, and "*the model of the Pavilion system*"—very badly, however, because artificially, ventilated. In the year 1861 he and Dr. Bristowe show in their table that 19 limb amputations were performed in that hospital. Of these 19 patients, 4 recovered and 15 died; certainly an astounding mortality, the more so when we consider that no money was spared by the French Government in the erection of this magnificent palatial hospital, and that each of its 600 beds was calculated to have cost upwards of £600.

ON THE TREATMENT OF INTRAUTERINE POLYPI.*

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TILL Sir James Simpson suggested the use of sponge-tents for dilating the os and cervix, surgeons were often obliged to look on, quite helpless, while women bled to death from polypi in the cavity of the body of the uterus, where they lay with the os completely closed, and often apparently healthy, and, as Sir James has shown, "were generally considered to be beyond the pale of any certain means of detection, or any possible means of operative removal."

The sponge-tent, however, is liable to many objections. It becomes very fetid when it has been a few hours in the uterus; it requires repeated applications before the whole canal of the cervix can be dilated, and it dilates the os externum to an unnecessary degree before it can be got to act on the os internum so as to allow of the exploration of the uterine cavity. The retention of fetid discharges in contact with the inner surface of the uterus is not unattended with danger, but this can be obviated by the use of glycerine as suggested by Marion Sims, or by impregnating the tent with carbolic acid, or permanganate of potash, as more recently proposed by Drs. Ellis and Aveling; but the great objection to sponge-tents arises from the repeated and prolonged applications of them required to get at the cavity of the uterus, and the mode in which they dilate the os externum, far beyond what is necessary, before they act on the os internum. Sir James Simpson, in describing their use, says "the use of the tent for a day generally dilates the os uteri and cavity of the cervix sufficiently, and the employment of the sponge is accompanied with little or no feeling of uneasiness. When it is necessary to examine the state and conditions of the interior of the cavity of the body of the organ, the persevering use of a series of larger and larger tents, for several days, is usually requisite, and the dilatation of the os internum and body of the organ, sometimes but not always, causes a feeling of uneasiness and pain that may require the use of an opiate." Dr. Marion Sims has seen metritis follow the injudicious use of the sponge-tent, and is very specific in his directions to avoid this. He does not allow the first tent to remain in for more than six to eight hours, and "if the second tent fail to dilate the cervix sufficiently it is safer, he says, as a general rule, not to persevere further for a time, but to wait a few days and then resort to it again." In another place he says, "I never use them if I can possibly avoid it, and I never apply them without apologising to my patient for the very unpleasant effects they produce. He who gives us an efficient, pleasant, and cheap substitute for sponge-tents will confer a great boon on Surgery."

My own experience more than confirms all that Dr. Sims says as to the danger of repeated applications of the sponge-tents, for I lost a patient on one occasion from the inflammation set up by the action of the third tent, although it was removed at the onset of the symptoms, and before the os internum was dilated, or any attempt could be made to explore the cavity; and for this and other reasons I have latterly given up sponge and adopted sea-tangle, applied in a manner I shall now describe; and, I believe this substance, when used rightly, supplies the boon to surgery so much desired by Marion Sims, and forms "an efficient, pleasant, and cheap substitute for sponge-tents"; above all, efficient, and, I will add, safe.

When uterine hæmorrhage has been going on for any time, the tissues become relaxed and the os becomes more open than it is in the healthy state, consequently, a fine sea-tangle tent can be passed at once through the whole length of the canal of the cervix, and on to the fundus of the

uterus; and, by a little care, a number of fine tents can be packed into the uterus, alongside of one other, when a single tent, though not nearly so large as the bundle so formed, could not be passed at all; and on this fact is founded the mode of dilating the uterus that I adopt. I pack into the uterus, extending throughout the whole length of the cavity and projecting a little beyond it, a bundle of fine sea-tangle-tents, as numerous as I can get in, without using force or causing pain, and leave them there for twenty-four hours. By their expansion, they dilate the whole cavity in an equable manner to such a degree as to allow of the finger being passed up to the fundus as soon as they are removed. Thus the repeated applications, and the irregular dilatations of sponge-tents, are avoided; and, as sea-tangle does not become putrid and offensive, as sponge always does, this source of danger is also obviated. When the woman has never borne children and the os is abnormally small, it may be necessary to apply a small single tent in the first instance, so as to dilate the passage to get in a sufficient number for full dilatation; but of the very many cases in which I have now used this method, I have only met this condition once, and then a single tent of the size of a number five bougie, placed within the uterus for some hours, enabled me to proceed with the dilatation.

The exact mode of fixing the tents is this. The uterine cavity is first measured with the sound, and then a No. 5, or 6, sea-tangle bougie is cut into pieces a few lines longer than the cavity, and the pieces have their ends rounded off. The patient is now placed in the semi-prone position of Sims, the "duck-bill" speculum is introduced, and the anterior lip of the uterus is seized with a fine tenaculum. Having exposed to view and steadied the part in this manner, as many of the pieces of sea-tangle as can be got in, without using force, are packed into the uterus throughout its whole length. Five or six pieces of a No. 6 bougie will dilate the uterus quite sufficiently for the introduction of the finger; but if more can be got in, it will facilitate the subsequent removal of any polypi that may be found. The patient is now put to bed, and a morphia suppository given, which may be repeated, if pain supervene. At the end of twenty-four hours, the patient is again placed in the semi-prone position, and the pieces of sea-tangle are extracted, one after another, with a forceps; and, chloroform having been administered, the right index finger is introduced into the uterus, while the fundus is pressed down and steadied by an assistant, or by the left hand placed over the hypogastrium. If the uterus be high up, or much elongated, it will be better to lay hold of one of the lips with a strong firm vulsellum, and draw the whole organ down to the vulva, where it may be held by an assistant, than to use any excessive pressure over the hypogastrium. If a polypus be discovered, its condition, size, and attachments, must be ascertained by the finger, and then the necessary steps taken for its extraction.

For removing the tumour, I first seize it with a fine vulsellum, guided up to it with the finger. This instrument is then committed to an assistant, and a single wire *écraseur* is introduced into the uterus. The loop of the wire is first passed over the handle of the vulsellum, and the point of the *écraseur* is run up into the uterus along the vulsellum, which serves as a guide for it, till it reaches the neck of the tumour. The finger is now again passed into the uterus, and the point of the *écraseur* being ascertained to be resting against the neck of the tumour, the wire is pushed along the blades of the vulsellum till it is free of them, when the screw of the *écraseur* is worked while moderate tension is kept up on the vulsellum, and thus the wire falls into its place and quickly divides the neck of the tumour, which may now be removed along with the vulsellum holding it. If a good slice of the tumour be taken off, it will be sufficient to ensure its disintegration and removal, so that it is not necessary to spend time and run the risk of irritating the uterus in trying to encircle the tumour at its absolute point of attachment; but if the wire be not carried fairly beyond the vulsellum, it will break when tightened and it will be necessary to fit on a new one and adapt it more carefully to the tumour.

Proceeding in this way, I have removed a large number of intrauterine polypi, and always with safety and comparative ease. One of the cases I have thus operated on, presents features of such rare interest, that I think it desirable to detail it at length, as I believe there is no similar one on record. Twenty-nine simple fibrous polypi having been removed from the interior of the cavity of the body of the uterus at four different operations.

Glandular polypi of the cervix are generally gregarious; where one appears, there will commonly be more found on careful examination. The soft cellular polypus is also frequently accompanied by one or more of the same description, and the glandular may be found along with any of the other forms; but the fibrous polypus is almost always single. Dr. West states that it is rare to find more than one projecting at the same time into the cavity of the organ. This, he believes, is due to there not being room for more than one tumour at a time in the

* Read in the Midwifery Section before the Annual Meeting of the British Medical Association in Oxford, August 1868.