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SURGICAL END-RESULTS IN GENERAL

WITH A CASE OF CAVERNOUS HÆMANGIOMA OF THE SKULL IN PARTICULAR[1]

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THE medical profession is essentially gregarious. There is no other profession equally so, and, because of this trait, the medical society, where experiences may be interchanged, becomes the most effective agency for the diffusion of knowledge—even more effective than our extensive literature. Certain kinds of information, however, are conveyed far better by onlooking than by studying the printed page, and in so far as surgery is a craft its newer lessons can best be transmitted by observing the manipulations of others.

In days gone by, all of our societies, even the strictly surgical ones, were almost wholly subjective in their methods of teaching. The members sat and listened to subjective expositions. This went on until 20 years ago, when a small group of American surgeons founded a society into which the opposite principle was introduced—the objective method of exposition. In rotation its members met in the several institutions they represented, in order to see one another at work—at the operating table, in the laboratory, at the bedside, in the classroom before their students. These meetings, at which no papers were read, proved a great success, and the established usage of this society has become widely copied, particularly by small groups of surgeons both at home and abroad. So great a success was it that the principle came to be adopted wholesale by the Clinical Congress of Surgeons, and so eager was the demand for the opportunities offered through this agency to see an entire community of surgeons engaged in their tasks, that the gatherings became utterly unwieldy.

Out of this has grown the present College, modeled in certain of its customs on the Royal College of Surgeons of England. But the chief function of the three Colleges of Surgeons of London, of Edinburgh and of Dublin, is that of a licensing body, and with this we have nothing to do. However, the founders of the American College had no intention of its becoming merely a club. They have set out deliberately to make a membership in the body highly desirable for other than social reasons.

Surgery has become the chief therapeutic resource of the profession. Those of us who engage in it are better aware than any others, of its commercializing opportunities and temptations, so largely the outgrowth of specialization. Accordingly, certain very-much-needed reforms have been inaugurated by the College—reforms the object of which is to render impossible the barter of patients on the part of those members of the profession, both in and out of our particular craft, who could never have read or pondered over the Hippocratic oath and who ignore the Golden Rule.

[1]Presidential Address before the Clinical Congress of American College of Surgeons, Boston, October 23, 1922.

But granting honesty of purpose and professional idealism in the vast majority, the College has set about further to safeguard those subjected to surgical operations in two ways: first, by putting its seal on those who may be considered sufficiently well trained to undertake major operations; and, secondly, by seeing to it that the hospitals in which such procedures are carried out are properly organized and conducted.

There may be some doubt regarding the entire success of the former endeavor—the fair bestowal of the College hall-mark. There are men both in and out of almost any society that can be named, who should not be. But there can be no question of the success of the movement for the betterment of the hospitals: and the educational campaign which has attended their survey has been of far-reaching importance. The laity and hospital Boards understand better what manner of man the surgeon should be and how hospitals should be conducted. The hospital surgeon, generally speaking, has come, on the other hand, to take himself and his institutional responsibilities far more seriously than once was his inclination.

With all this, the holding of these annual meetings has little to do. What is more, the large public operating clinics a relic of the original Congress, lie open to very serious temptations and objections. Few surgeons can do their best work when elbowed by an undue number of onlookers, and their customary judgment and resourcefulness in emergencies may be seriously affected by the inescapable distractions associated with the entertainment of, and provision for, a large number of guests. This is the experience of every surgeon who has a conscience. It is true that a home team has an advantage over a visiting team, but even the home team, however steady under ordinary circumstances, is apt to pile up errors in a bad inning under the unusual stress of a championship series. And a surgical team is engaged in a far more responsible business than a ball-game.

It is with some such ideas in mind that the local committee has felt inclined to eliminate, so far as possible, as unsuited to a large assemblage, the more purely operative features which largely characterized the program of the original clinical congresses. With its avowed purpose of safeguarding the patient, the College cannot put its stamp of approval on a custom which may tempt some of its members either to rush through the preliminary studies of a newly admitted patient or, what is equally culpable, to hold over for the purposes of the meeting operations which might better have been done without delay. Furthermore, an objectionable degree of publicity has been a distinct evil of former meetings of the Congress. As a rule, the better the surgeon the more unassuming he is and the more he abhors seeing reference to his work in the lay press.

Certainly the College cannot wish to foster the mere spectacularization of surgery, so prevalent in days gone by, and the Boston members have decided to follow again the same course they pursued when the Congress met here before—the only course they can see whereby this tendency can in a measure be offset—namely, by a subsequent report, to be published in the official organ of this body, not only of the immediate but of the late results of all the public operations performed in the Boston hospitals before members of the College at this meeting.

There is no doubt but that one craftsman profits by seeing another craftsman at work, but if a few hundred artists should stand at the elbow of Mr. John Sargent while he is in the process of painting a portrait, it would in all likelihood so modify his customary performance that the sitter might with very good reason be dissatisfied with what may be spoken of in surgical parlance as the end-result. There is unquestionably a great deal of artistry about a well-conducted operation, but surely as surgeons we are not content to be mere manipulators and piece-workers—more interested in the technique than in the portrait. The important thing in surgery is not operative dexterity but what the patient looks like after you and I have removed our gloves, and what he is subsequently able to do with what we have left of him.

A good deal of this end-result discussion has emanated from the community in which we now meet, and not a little of it through

the expostulations of one person, who finally under the auspices of the College has undertaken, as a type-study, the investigation of the operative results of a single pathological lesion—the sarcomata of bone. It is not a question of how many legs or arms have been amputated for osteosarcomata, nor how many seconds it took to "drop the limb," a matter which chiefly interested our forebears, nor, indeed, by what particular method the operation was performed. The important questions are whether the amputation should have been done at all in view of the pathology of the lesion, and, granting an immediate recovery, whether the individual's expectation of life has been augmented. No doubt there have been, with all good intent, an unnecessary number of limbs sacrificed, just as there have been an unnecessary number of easily detached furnishings,—tubes, gall bladders, and appendices, tonsils, teeth, and turbinates,—piled on the altar of Æsculapius.

But let us settle, so far as we may, one thing at a time. And even this proves difficult enough. A clinical diagnosis of sarcoma of the tibia has been made, followed by amputation and a confirmatory pathological report on the nature of the lesion. The patient has survived for an unexpected number of years. No record of the case has been kept and the tissues have been discarded, even the histological preparations thrown aside. Does this long survival mean good surgery or an erroneous diagnosis? Was the tumor non-malignant in the beginning? Could the limb have been saved? These are questions difficult to answer, nor would a correct answer serve now to benefit this hypothetical patient. But tomorrow any one of us may be confronted by a similar problem in its relation to some patient of our own.

Only by the whole-hearted co-operation of a large body of surgeons, who have kept detailed and reliable records, can a reasonably exact answer be given to such a question as the operability of the various sarcomata of bone, and it is to secure this that the committee which has been at work on the subject has received the backing of the College. It unquestionably is something of a nuisance to each of us individually to interrupt our own personal investigations in other fields, long enough to add our small quota of percentages to what may seem time-worn problems that interest others more than ourselves, but there are many of these problems which can be solved only by the statistical study of a large mass of material, and it is well worth the trouble if someone is willing to take it, even if it saves only one occasional leg in the community.

My own feeling in the matter is that if the College wishes to lend its influence to studies of this sort it can best do so through the agency of the hospitals as an outgrowth and side-issue of its campaign of standardization. There could be no better way of gauging the working conditions in a given hospital than by the character of a report it would submit on some such question as, let us say, the results, immediate and remote, of the operations for cancer of the breast, covering a given decade. Such a report would reveal at a glance not only the quality of the operative work itself, but how carefully it was safeguarded—how correct were the diagnoses leading to the operation; how thorough the pathological studies; how dependable were the hospital case records; how conscientious the hospital in its quest for information concerning the ultimate results. If in each of the Class A hospitals some young member of the staff were given as his particular study for the year an analysis of all the cases of bone sarcoma recorded in the hospital files, and an effort were made to recall for re-examination, or at least to get reports from, all individuals still surviving, the information the College and its committee unselfishly desires in respect to this single problem could be easily obtained.

Every hospital, after its own method, has some sort of an annual publication, containing for the most part statistics and enumerations, of interest largely to administrators alone. These things are doubtless necessary for good housekeeping. But I would suggest that in place of the futile lists of diseases and operations which encumber these publications, the hospitals be requested to include each year a concise report upon some particular clinical problem to be selected by the Regents of the College. In this way ample data for almost

any required statistical study could be secured, and the process would lead to a very desirable regrouping of the institutions already on the acceptable list, into those which keep sufficiently reliable and complete records of their patients and those which do not. Let us hope that the College will take advantage of some such method of securing for analysis a mass of information such as that of which the committee now investigating the sarcomata of bone is in need. And when that has been obtained, let us turn to such other topics as can be illuminated in similar fashion through statistical studies, year after year.

I have been led to write this preamble concerning surgical end-results in general, the better to explain my reason for putting on record at this time some notes regarding a case which for three years masqueraded in the Brigham Hospital records as a melanotic sarcoma of the skull. I do so at the request of my persistent friend, Dr. E. A. Codman, though my inclinations would have led me to wait until I had learned something more about the condition by the opportunity of comparing it with other and similar lesions. It is true that this opportunity might never come. Though provisionally diagnosed as a melanotic bone sarcoma, probably metastatic, the case proves, from the evidence of time as well as from the evidence of subsequent histological studies, to be a tumor of less malignant nature than had originally been supposed. It is this, I believe, that Dr. Codman particularly wishes to have emphasized: namely, that a diagnosis of bone sarcoma in cases which have long survived operation must be received with skepticism until the original records of the case have been scrutinized anew with the greatest care. With this feeling I am fully in accord, and there is no question but that the following history is a good example of the diagnostic slips and pitfalls which surround all of us.

The patient (P.B.B.H. Surgical No. 10669), Mrs. C., was a woman of fifty-five years who was admitted to the Brigham Hospital June 20, 1919, because of a dome-shaped, bony prominence of the left parietal region which at first sight was regarded as the hyperostosis overlying a meningioma (dural endothelioma). Five years before her entrance she had bumped her head severely at this particular spot. The place remained sore and in the course of a year there slowly developed a slight prominence with some tenderness to pressure and a dull, uncomfortable ache. This swelling during the preceding few months had been enlarging somewhat more rapidly.

Apart from this bony tumor, her physical examination revealed no abnormalities. There were no localizing symptoms indicating any intracranial involvement, but the meningiomata not uncommonly fail to cause cerebral symptoms, even when these tumors reach a large size, and, what is more, the flat rather than the rounded types of these growths appear to be the ones which most often provoke some thickening of the overlying skull. The X-ray, however, did not tend to confirm the bedside diagnosis, for there was a well-outlined patch of rarefaction corresponding to the bony protrusion which was variously interpreted as due to a possible cholesteatoma, gumma, sarcoma, or bone-cyst.

At the operation a cranial flap was outlined, so as to give the involved area a generous margin, and on reflecting the flap a most unusual picture presented itself. Projecting within the skull were two fairly well-outlined prominent bosses of tumor as shown in the accompanying sketch—a tumor, moreover, of purplish-black color which had an appearance suggesting a melanoma. The dura was indented by, and was slightly adherent to the nodules, which were about a centimeter in height, firm as bone, and somewhat "thimbled" as to their surface.

Greatly distressed by this disclosure, I assumed that the growth must be the metastasis of a melanotic sarcoma, the original source of which had been overlooked. Accordingly for purposes of histological confirmation a small fragment was curetted out for immediate study. A report was returned that on crushing the tissue and examining the cells they were found to be both round and spindle-shaped, and to contain blackish-brown pigment in the form of fine granules—diagnosis, melanotic sarcoma. In view of this report it was presumable that there were corresponding metastases elsewhere, but nevertheless the exposed lesion was so definitely centered in the flap that the decision was made to sacrifice the bone, and on stripping it away from the scalp the external portion of the dark-colored tumor which adhered slightly to the pericranium (Fig. 2, frontispiece) was revealed. The growth proved to be about 3 centimeters in thickness.

The patient in the usual detail had been thoroughly examined before the operation, but subsequently she was again gone over from top to toe in order to see whether we might not possibly have somewhere overlooked a primary melanoma. Though nothing was found in skin or retina, I knew from a sorry experience that there nevertheless might be a primary focus hidden somewhere in the body.

The experience to which I refer was as follows. A young woman with symptoms of a parietal-lobe tumor was operated upon many years ago in the

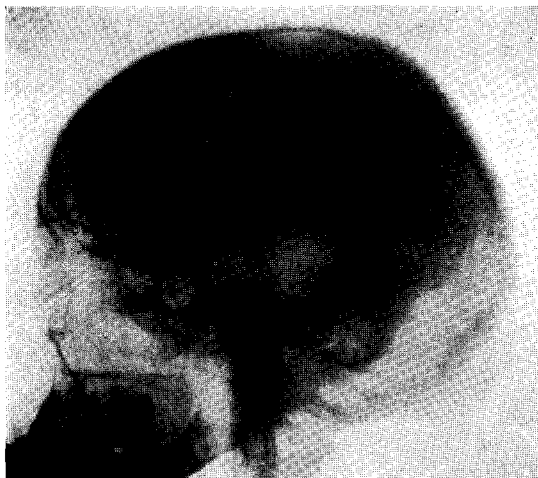


Fig. 3. Roentgenogram showing (poorly) the area of bone thinning in right parietal region at seat of the tumor.

Fig. 4. Path. No. P.B.B.H. S-19-432. Histological appearance of the cavernous angioma (Mag. ×33).

Johns Hopkins Hospital, and a purplish-black growth the size of a hen's egg was encountered and easily enucleated. The histological examination showed it to be a melanotic sarcoma, and she was thoroughly re-examined for a possible primary source of origin without one being found. She made a perfect temporary recovery, but some months later because of a return of her cerebral symptoms she re-entered the hospital, to end her days there. A postmortem examination disclosed multiple cerebral metastases and a primary melanotic sarcoma in a small dermoid cyst of the left ovary.

But to return to the patient in question. She had an uneventful convalescence, accepted my explanation and apologies for having left such a large defect in her cranium, and was discharged July 1, 10 days after the operation. And now comes the part of the story which chiefly concerns our present topic.

The specimen was an unusual one. It was carefully described for the pathological records and the accompanying color sketch was made of it. Meanwhile the pathologist's report based on the fresh-tissue examination alone, had been forwarded to the record-room and the diagnosis of melanotic sarcoma was inscribed on the history. An index card in correspondence was made out for the files and the case soon forgotten.

The patient was not heard from for 2 years, when, in answer to the routine letter of inquiry which we are accustomed to send to all patients after that interval, she replied, contrary to expectation, that she was perfectly well and had dismissed from mind her old trouble.

This unexpectedly favorable report led to a re-examination of the specimen and a block was sawn from the tumor for decalcification and sectioning. It was in midsummer, there had been a change of technicians and a new pathological assistant. The specimen was side-tracked, appears never to have been sectioned, and the inquiry regarding the case again became submerged by a succession of other more pressing matters.

A year later, by now 3 years after the operation, enters the bone-sarcoma committee, and one of our house officers was asked to prepare for them the data they requested in regard to the Brigham Hospital series of cases. Mrs. C.'s case was included, and ere long, word was received from Dr. Codman expressing doubts regarding a three-year survival of a patient with a melanotic sarcoma of the skull. Whereupon we found to our humiliation that the diagnosis still remained based upon the original fresh-tissue examination. A new section was removed and decalcified, and the growth proves, in the opinion of Dr. S. B. Wolbach, to be a cavernous hæmangioma—a comparatively benign tumor (cf. Fig. 3).[1]

This, Gentlemen of the College, is my entire story. Its moral is obvious. Fortunately the error in our pathological diagnosis has made no vital difference to the patient, though I would greatly have preferred to have left her with less of a cranial defect, and I presume the growth might have been treated locally—possibly, indeed, by radiation. The lesson is that any one of us may at any time acquire an utterly erroneous impression regarding a pathological lesion and the effectiveness of our operative procedure in a given

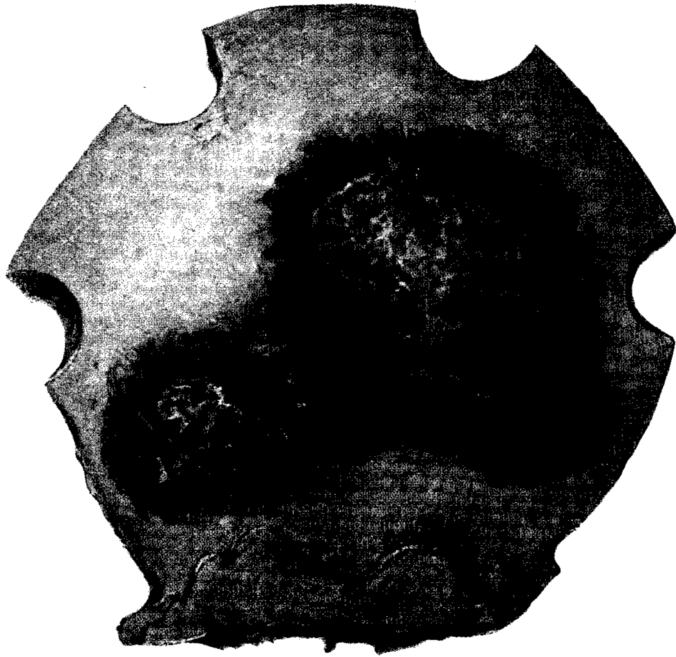
[1] This appears to be a particularly rare lesion in the cranial bones. A case of similar nature was reported by George Schoene in 1905 in the Julius Arnold Festschrift. ("Ueber einen Fall von myelogenen Haemangiom des Os occipitale." Beitr. z. path. Anat. u. z. allg. Path., Jena, 1905, vii, sup., 685-701.)

case. As a matter of fact, I understand that it is the experience of the Registry that at least two out of three cases recorded as sarcomata of bone prove in the opinion of the committee to be some other lesion.

Experience is the chief asset of a physician or surgeon, and possibly none is so valuable as that gained by our mistakes and errors of judgment. But knowledge to be exact must be based on something more than operating-room and bedside impressions. The only possible way to avoid the accumulation in our minds of inexact impressions regarding the results of our operative procedures for one condition or another is by a properly organized follow-up system which brings knowledge of the ultimate results not only to the hospital record-room, but vividly before us as individuals.

To be sure, I have illustrated these remarks by an isolated experience with a rare lesion, but we are just as prone to gain impressions which may be unjustified regarding our more routine performances. Though our bad results sometimes haunt us, patients who have suffered unnecessary or unsuccessful operations at our hands are likely to consult someone else and leave us in blissful ignorance of our failures unless we deliberately as individuals or as representatives of institutions set ourselves to pursue the maladies of our patients to their conclusion.

In this pursuit, moreover, we cannot effectively act alone, for we need to compare our results with those of other individuals or of other groups of individuals in other hospitals if we are to determine whether the best attainable results are being approximated in a series of operations for any given condition. In a co-operative study of this sort some sympathetic central agency like this College, which does not presume to act as a board of censors for individuals or hospitals, but which desires to improve not only the institutional conditions under which surgical operations are performed but to safeguard, as well, the character of these operations, can play a very important rôle.



Figs. 1 and 2. Color sketches (natural size) of the original bone flap showing at left the external tumor, and at right the internal tumor, the crater being the point at which the fragment was removed for examination.

Surgical End-Results in General; with a Case of Cavernous Hæmangioma of the Skull in Particular.—Harvey Cushing.