not, such patients are liable to transmit the disease to others with whom they come in contact. Consequently Dr. Powers thinks that quarantine restrictions should be maintained until every case shows an absence of germs at least with two consecutive cultures. In quarantining large schools or homes this procedure is necessary in order to prevent mild forms of the disease or to prevent patients who have had severe forms of diphtheria returning and reinfecting the building. The injection of small doses of antitoxin permits a mild form of the disease; the antitoxin does not kill the bacilli; it only neutralizes the toxin.

DR. KATE LINDSAY, Boulder, Colo., stated that whooping cough has been the most troublesome disease for her to quarantine, and it is a very dangerous disease, certainly during the first three years of childhood or between 6 months and 3 years. As a rule, children have whooping cough in a mild form if they are from 6 to 8 or 10 years old, and they go around the neighborhood, and yet it is a very dangerous disease in young children and very liable to be followed by sickness. Dr. Lindsay said she would like to have some light on the matter of quarantining whooping cough and saving the babies.

DR. N. K. FOSTER, Sacramento, said that in California there is no law making whooping cough a quarantinable disease; it is a reportable disease under the rules of the state board, and it is a misdemeanor to disregard these rules. He also spoke of the number of properly educated sanitarians. Our health officers are largely recruited from physicians—from those who are young and inexperienced and generally without having had any special training. He said he wished the American Medical Association, starting through this Section, would insist that the medical colleges in this country educate sanitarians or at least provide some good course of sanitary science. Let them give a two years' course, so that we can have men all over the country who are competent sanitarians. Of course, there are many good men now—men who have had extended experience and education, but throughout the country sections and a good many of the thriving cities there are men who are not what is needed, and Dr. Foster supposed that it is the same throughout the United States. There is difficulty in getting men who have had any instructions whatever in sanitary science; they may be good physicians, but bad sanitarians. Dr. Foster thinks it would have to be a postgraduate course, but thinks these men should have some teaching, at least an optional course of a few months, in sanitary science.

DR. JAMES CARROLL, Washington, D. C., said that the George Washington University is now contemplating the establishment of a course with a view to conferring the degree of doctor of public health, the special object being to qualify men for the sanitary service.

DR. W. C. CHAPMAN, Toledo, said that the only trouble is that health officers are not well paid. There is no inducement to take that course for two or three years for \$25 a year, which is about the sum paid health officers in Ohio.

DR. E. E. HEG, Seattle, said that Dr. Foster's idea of a course in sanitary science is exceptionally good. He thinks, however, that such a course should be a part of the general training of a physician. The whole point of getting reports is getting the co-operation of physicians; if they were to understand the necessity that the health authorities have for accurate reports there would be no trouble in getting those reports. If that was a part of the general training in colleges, a requisite for a degree, just as a knowledge of the eye is, they would know the necessity of it and education on the subject would start with the younger men. The older men would some time die off, and the younger men would know something about it. He said that Dr. Foster's method of handling smallpox in California has been done in the state of Washington for nearly three years. In Washington, on one side is a state with no health authorities whatsoever, on the other side is British Columbia, and there the authorities are exceptionally strict. If even one case of smallpox drifts over the line from any one town in Washington it means an absolute quarantine of a whole section of the state, so the Washington health officials have to be careful. All quarantine regulations should be tempered a great deal with tact. The object, of course, is to get the greatest possible protection with the

least possible inconvenience. Tact is a valuable quality in any health officer or in any physician.

DR. CHARLES C. BROWNING, Monrovia, Cal., said that co-operation has been dwelt on at length, and he thinks not too greatly, because that lies at the foundation of being able to secure reports. Recently he was visiting a physician, who was going to stop at a place, and asked him to step in. He stepped in and saw a child with scarlet fever and was a little surprised. The physician made a hurried call, and after leaving the case said he would not call it scarlet fever because the health officer would put a card on that house, and the man had to make a living. It seems in that particular town the physicians are not in as good accord as they are in Washington. That is one of the stumbling blocks. Another is that the people generally understand that a report means quarantine. Now, the large number of cases of tuberculosis and typhoid fever do not need to be quarantined in the general sense of the term; it is not proper or necessary, but if physicians understand that when such cases are reported a certain latitude and assistance will be extended, the disease will be attacked by educating the people. First get the physicians educated, and then educate the people to look on the health authorities as their friends, and not as a great inconvenience. That is especially true of typhoid fever and tuberculosis, diseases which are responsible for a great deal of suffering. Then get at the teachers of the public schools through the state board of health and through the county and city boards.

INNOCENT FIBROMYOMA OF THE UTERUS.*

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During the last few years there has appeared in the surgical literature a number of articles wherein the writers have advocated the removal of practically all fibromyomata of the uterus. This position has been taken for the most part on the ground that in many cases complications threatening life, such as the various diseases of the tubes and ovaries, etc., were found which warranted the removal of these structures together with the uterus itself.

It is my purpose to urge that in a very large proportion or in practically all fibroid tumors there exists in the tumor itself at the time of diagnosis, or will exist with considerable degree of certainty at some future time, conditions which warrant their removal, or that the tumor will sooner or later produce such conditions elsewhere. I do this with the full realization that there come to the autopsy room numerous cases wherein such tumors had existed for years symptomless, and in which they were no way responsible for the death of the woman.

That there is a tendency to exaggerate the extent to which these degenerations are found is conceded; nevertheless, that they are found in such a number of cases as to render them of much importance requires for confirmation only the careful perusal of the literature of the subject.

Camus¹ reports a case of multiple fibromyoma of the uterus, weight 4 kilograms, which had undergone calcareous degeneration in one part, the degeneration evidently having started on the periphery. There were no symptoms, but large abdomen.

M. Cornil² describes the removal of an intramural fibroid of the size of a fist in a state of edematous and colloid degeneration. The tissue was semitransparent

* Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-sixth Annual Session, July, 1905.

1. Bull. et Mém. Soc. An., Paris, 1904, lxxix, 707.

2. Bull. et Mém. Soc. An., Paris, 1904, lxxix, 696.

and soft. The uterine cavity was filled with a cancerous growth, bathed in a milk-like liquid. (Microscopic examination.)

Haultain³ believes that while fibromyomata may become secondarily malignant, this is by no means so common as might be inferred. Authentic thoroughly proved cases of sarcomatous change in a pre-existing fibroid are few, yet it is probable that all cases of encapsulated sarcoma are degenerating fibromyomata.

Von Franke⁴ states that sarcomatous degeneration occurs in .75 per cent. of all cases, while Cullingworth met with one case of myxosarcoma in 300 cases of fibroid, and Noble only two in 258 cases. Von Franke has observed one undoubted case in 400, while in consulting the case book statistics of Professor Simpson's ward in the Edinburgh Royal Infirmary no instance has occurred in the last 300 cases of fibromyoma. In taking these statistics *en masse*, in only four cases out of 1,350 fibromyomata had sarcomatous change occurred. As a rule, he states, sarcomatous change occurs after or about the menopause and is perhaps the most common, but by no means the only cause of increase in size of a fibromyoma after the climacteric. From the rapid increase in the size of the tumor, severe pain is a very constant symptom. Thus, if after the menopause along with enlargement of a known fibroid there is pain and loss of strength, the diagnosis of sarcomatous change is almost certain. Cystic edematous infiltration and degeneration of fibroids with slight cellular proliferation resembling myxosarcoma, von Franke has observed on two occasions. In one of these, the interspaces were filled with a blood clot which gave the appearance of a telangiectatic tumor described first by Cruveilhier. In both cases the cellular proliferation, though assuming the embryonic type, was so scanty that one could hardly classify them as sarcomata. After removal there has been no sign of recurrence as was to be expected. He believes that malignant epithelial infiltration of fibromyomata is of extreme rarity, only one or two cases having been cited. In these instances, the original tumor has probably been adenomyoma, a tumor either due to Wolffian relics or to infiltration of the muscularis of the uterus by glands from the endometrium.

H. Smith⁵ reports a case of calcareous degeneration of a fibroid tumor removed by supravaginal laparotomy. Recovery.

Dr. B. Fenwick⁶ noticed that calcareous tumors invariably had very small pedicles and in cases he examined he found that the blood vessels were of a small caliber in comparison with the size of the tumor they had to supply. He thought, therefore, that the cause of degeneration was the want of an adequate blood supply. The walls of the ovarian and uterine vessels in cases of myoma were almost invariably greatly thickened, a condition described still more clearly by Mr. Stanhope Bishop more recently. Adhesions to the intestines and omentum were less common in calcareous cases than when the degeneration was more rapid.

B. Emmett⁷ describes a fibromyoma filling the pelvis and a greater portion of the abdomen, causing pressure symptoms. One of the tumors was found on microscopic examination to have undergone colloid degeneration. Dr. Dougal Bissell mentioned two cases.

Francois Dainville⁸ reports a case of cancerous degeneration of fibromyoma of the uterus.

Charles P. Noble⁹ reports a case of the invasion of a fibromyoma of the uterus by an adenocarcinoma, which by metaplasia had assumed the appearance of a squamous cell carcinoma. There was an absence of cancer elsewhere in the body. He considers the important point in connection with this tumor to be the question of origin of the epithelial masses, and mentions the following sources reported in the literature:

1. Metastasis from tumor in other parts of the body. Such an extension has been reported by Schrapper¹⁰ from primary cancer of the lung.

2. Extension to myoma of cancer of uterus. Cases are reported by Bubl,¹¹ Röhrig,¹² Cullen,¹³ Ruge and Veit.¹⁴

3. In the development of cancerous tumor from epithelium normally contained in fibromyoma of this type, the "myocarcinom" described by Liebmann¹⁵ is not satisfactorily explained. Rolly¹⁶ describes an intramural myoma presenting the picture of carcinoma, with metastasis in the liver and bones. The uterine mucosa was normal. He believed the uterine tumor to be primary and to have its origin in adenomyoma, which in turn had developed from the remnants of the Wolffian body. Complete physical examination showed no evidence of tumor in other organs, and the portion of cervix not removed appeared normal. Microscopic examination showed distinct evidence of development from the epithelium covering the tumor.

J. C. Webster¹⁷ lists 210 cases of fibroid tumors treated surgically in which the degenerations were as follows: Calcareous 2, edematous 6, cystic 13, myomatous 4, suppurating 10, adenocarcinoma of cervix 1, sarcoma 2, hemorrhagic 3, necrobiosis 11; total 52.

Webster compares these findings with those of some other workers who have given particular attention to the subject in recent years. Thus Scharlieb in 100 cases of fibroid found degenerations in 26; Cullingworth in the same number found it in 52; Noble in 258 cases, found it in 47; Ellice McDonald in 280 cases, found it in 135.

E. McDonald¹⁸ writes: "Since Martin in 1888 made his study of degeneration in 205 cases of fibromyomata, others have reported similar series; notably Noble¹⁹ 258 cases, C. J. Cullingworth²⁰ 100 cases, Mary Scharlieb²¹ 100 cases, and C. C. Frederick²² 125 cases."

He summarizes the degenerations as follows: Fatty degeneration 7, calcareous infiltration 11, necrosis 55, cystic degeneration 34, telangiectasis 46, sarcoma 17, associated carcinoma of the cervix 15, associated carcinoma of the body 17, myxomatous (edematous) 8, associated syncytioma 1; total 788.

McDonald found degenerations as follows: Slight hyalin 18, moderately hyalin 32, marked hyalin 19, hyalin and calcareous 8, calcareous 14, calcareous, necrotic, hemorrhagic 2, cystic 8, myxomatous 4, hemorrhagic 6, necrotic 4, necrotic and hyalin 3, necrotic and

3. Trans. Edinburg Obst. Soc., 1903-1904, xxix, 167.

4. Encyclop. Geb., Langer. u. Huff.

5. Encyclop. Geb., Langer. u. Huff, 195.

6. Brit. Gyn. Jour., 1903 xix, p. 209.

7. Amer. Jour. Obst., 1904, xlix, 547.

8. Bull. et Mém. Soc. An., Paris, 1903, lxxviii, 915.

9. Amer. Jour. Obst., 1904, xlix, 306.

10. Virchow's Arch., 1892, cxxix, 61.

11. Mitt. a. d. Path. Institute z. München, 1878, p. 291.

12. Zeitsf. Geb. u. Gyn., 1880, vol. 265.

13. "Cancer of the Uterus," 1900, p. 410.

14. Zeitsf. f. Geb. u. Gyn., 1881, vi, p. 261, 1882, vii, p. 138.

15. Virchow's Arch., 1889, cxviii, p. 82.

16. Virchow's Arch., 1898, cl, p. 555.

17. Amer. Med., 1905, ix, p. 401.

18. The Journal A. M. A., May 21, 1904, p. 1344.

19. Brit. Gyn. Jour., 1901, xvii, p. 170. Am. Gyn., April, 1903.

20. Jour. Obst. and Gyn., Brit. Emp., 1902, i, p. 3.

21. Jour. Obst. and Gyn., Brit. Emp., 1902, ii, p. 323.

22. Amer. Jour., Gyn., 1903, ii, 297.

cystic infected 1, adenomyoma 6, associated with adenocarcinoma 6, associated with squamous cell carcinoma of the cervix 2, sarcoma 3, deciduoma malignum 1; total 135.

He concludes as follows:

1. Fibroids producing symptoms and all fibroids except those designated as small (especially when subserous or intramural) should be removed because the risk to the patient from operation is far less than from the tumors themselves.

2. In view of the sarcomatous changes, carcinomatous associations and complications of uterine fibromyomata, early removal is indicated when they are of sufficient size to produce symptoms.

3. Thorough pathologic examination should be made of all fibroids for evidence of malignancy. Particular study should be devoted to those tumors which are necrotic, cystic, or both, as among these are found the largest proportion of malignant changes.

Charles P. Noble²³ of Philadelphia, says A. Martin²⁴ was probably the first to tabulate and to analyze degenerations of uterine fibroids, as follows: Fatty degenerations 7, calcification 3, suppuration 10, edema 11, cystic degeneration 8, telangiectasis 3, sarcoma 6, carcinoma of the cervix 2, carcinoma of the body 7; total 57.

Dr. Noble tabulated and analyzed 258 cases of both degenerations and complications. He classes these in three groups:

1. Those which would lead to a fatal result.
2. Those which would threaten the life of the patient.
3. Those which would involve more or less invalidism.

He estimated that 95 of these patients, or 36 per cent., would have died of the complications of the fibroid tumors had they not been operated on.

Charles J. Cullingworth²⁵ reports 100 cases, covering a period from 1892 to 1901, inclusive; of these 46 were typical fibromyomata, with no structural change evident to the naked eye; two showed telangiectatic change, and 52 presented pathologic degenerations, as follows: Edematous and myxomatous 27, myxosarcomatous 1, cystic or fibrocystic 5, calcareous 1, necrotic 18; total 52.

Pain as a predominant symptom is an indication of a degenerative process. The age of the youngest patient operated on was 28, the eldest 61; the preponderant ages 35 and 45. Two of the cases showed a marked increase in size after the onset of the menopause, with initiation of necrotic change at that period. The operation resulted fatally in both these cases. No conclusions are formulated.

Carleton C. Frederick²² reports a series of 125 cases of both degenerations and complications. An estimate of probably 30 fatalities from complications alone may be made or about 45 per cent. from all complications.

Mary Scharlieb²¹ reports in 100 cases the following degenerations and complications: Edematous and myxomatous 5, sarcomatous 6, cystic or fibrocystic 7, calcareous 2, necrotic 2, sloughing 3, carcinomatous 1; total 26.

Degenerations were found in one-fourth of the patients operated on; in one-half of these it was such as directly to threaten the life of the patient without any reference to hemorrhage or pressure effects. In two patients the tumors contained cysts and were also in-

vaded by sarcoma. In 55 cases calcareous and sarcomatous changes had occurred. The age of the youngest patient was 18 years, that of the eldest 68.

In my 169 cases, degenerations were found as follows: Necrobiotic 10, sarcomatous 1, suppurative 1, calcareous 2, myxomatous 3, adenocarcinoma of body 3, telangiectatic 4, cystic 7; total 31.

Out of these 169 cases, I wish briefly to outline five cases which illustrate the impracticability and often the impossibility of a diagnosis of certain conditions in these growths prior to removal; also two patients not operated on at the time of the first examination, owing partly to the unwillingness to submit to operation and partly to an ill-advised deference on my part to the so-called classical teaching in the treatment of symptomless fibromyomata. The latter two patients died without operation.

CASE 1.—The patient came to me for consultation with regard to an abdominal tumor which on examination proved to be an interstitial fibromyoma of the uterus extending well up toward the umbilicus. She had few symptoms; her heart sounds were normal; her chief complaint was of the weight. There were no disturbances of menstruation. I advised operation, to which the patient demurred, saying it was giving her little or no trouble and she would not take the risk. A year later she appeared eager for an operation. A glance gave evidence that an operation was out of the question. Six weeks later she died; an autopsy revealed fatty degeneration of the myocardium. According to various authors²⁵—(Hofmeyer, Fehling, Dower, Fenwick⁶)—heart degenerations are a common result of neglected fibromyomata.

CASE 2.—An unmarried woman came to me with a fibroid tumor of considerable size not because she suffered from it, but because her neighbors were questioning her chastity. This was in the summer, and she preferred to wait until cooler weather for operation. Before the oncome of such weather as suited her, however, she was seized with a chill, followed by high temperature and rapid pulse, and died. Autopsy here showed extensive necrobiotic changes.

CASE 3.—This patient, aged 38, came to me complaining of a not particularly severe menorrhagia. There was some history of malaria. She did not know she had a tumor. Examination, however, revealed a uterine fibroma about the size of a coconut, low in the pelvis, with subserous nodules protruding from the surface of the larger mass. On removal the mass showed at various places throughout its interior small areas of softening which were easily indented, while the tissues had a tendency to break down on pressure. Microscopic sections through these areas showed plainly that the tissues had a tendency to break down on pressure. Microscopic sections through these areas showed plainly that the tissues were undergoing necrobiotic changes.

CASE 4.—A colored woman, aged 45, had a tumor which extended well above the umbilicus. She suffered considerably from menorrhagia and from pressure symptoms, although there was nothing in her condition which could be construed as threatening. As a matter of fact she was able to sustain herself and a rather large family by work at the washtub. A superficial examination of the tumor after its removal indicated that it was nothing more than a simple fibromyoma. A series of sections from different portions of the mass examined under the microscope, however, showed areas in which there were distinct evidences of sarcomatous degeneration.

CASE 5.—This patient also was a negress, aged 23, from whose sister I had a year before removed a fibromyoma, and this fact was probably responsible for her coming to me at a time when the tumor, so far as she knew, was giving her no trouble, although she was rapidly declining in health, a condition which she attributed to other causes. The tumor was of the interstitial variety and measured about 3 by 4 inches. On section the endometrium was found to be very much thickened, while high up in the cavity there was a small mucous polyp, in the neighborhood of which the endometrium

23. Amer. Jour. Gyn., 1903, II, 297.

24. "Pathology and Therapeutics of Diseases of Women," Boston, 1890, pp. 268-272.

25. Jour. Obst. and Gyn., 1902, II, 223.

was much more thickened and of brainlike consistency. On microscopic section extending from this area outward and involving the uterine musculature and the tumor growth, there were numerous projections which showed carcinomatous degeneration. In addition to this there were areas entirely cut off from the endometrium and surrounded by the fibrous tissue in which the alveoli were easily made out. This patient, operated on in March, is already showing evidence of return of the growth.

CASE 6.—A woman aged 43 suffered but slightly from a tumor not larger than an orange. This tumor on removal proved not only to have undergone extensive calcareous degeneration, but telangiectatic degeneration also, so that the hemorrhage was excessive owing to the dilatation of the blood vessels as well as from the fact that the calcareous degeneration seemed to have invaded the vessel walls. The conditions found in this growth do not bear out the statement by Fenwick previously quoted. He holds that in calcareous tumors we usually find the blood vessels of small caliber.

CASE 7.—This patient had a fibroid some 10 inches in its transverse diameter. In shape it was very much like an enormous kidney, attached by its hilum as it were, to the fundus of the uterus, the pedicle being some three inches in diameter. This tumor had been of little or no trouble to the woman until she had a fall, after which the symptoms of torsion of the pedicle appeared. The tumor was promptly removed and showed evidences of necrobiotic degeneration.

These cases all present one common characteristic, the lack of any symptom which would indicate any pathologic lesion other than the tumor itself. In one case, the patient was not aware that she had a tumor; yet of these cases, two patients died for want of an operation; one from necrotic changes, the other from changes in the myocardium, which condition, according to eminent authorities, is undoubtedly one of the results of neglected fibromyomata. Another of these cases illustrates a common form of the innocent fibroid, the tumor attached to the fundus by a long pedicle. By virtue of such attachment, it is little calculated to give rise to symptoms so long as it remains in its original position. There is ordinarily no menorrhagia. As it assumes some size, it rises easily out of the pelvis. It causes no pressure symptoms, but its very conformity makes it particularly prone to circulatory changes either from a deficient blood supply through its narrow pedicle or by torsion of the latter.

Of these cases, two patients died without an operation in which there were at least nine chances out of ten for recovery. One will die after the operation as the result of a general carcinomatosis appearing promptly after the removal of a fibroid tumor which had been extensively invaded by carcinoma from the endometrium. The others are alive and well. They are all of the class in which those operators who believe in the policy of procrastination, or who, to use their own expression, take a classical view of these cases, would have advised against operation.

It is hard to realize in this day of advanced and intelligent surgery that men of unquestioned standing will delay these operations, trusting to good luck or the menopause to do away with the symptoms of which these women complain. According to my observations, so far as the menopause is concerned, it aggravates rather than improves the symptoms in at least half the cases. The idea of the menopause curing such a thing as a fibromyoma is a relic of the surgical dark ages, and admitting the bare possibility of such a thing occurring, the chance is so small that it should not be taken by the intelligent modern operator.

In this connection, J. Bland Sutton²⁶ says: "Surely

there is nothing in the whole range of surgery more ironical than a woman spending 20 or even 30 years of her life as a chronic invalid on account of a uterine fibroid, in the expectation that at the menopause she will be restored to health and begin a new life, and then to realize that, far from this being fulfilled, the fibroid becomes necrotic, extruded or septic, and places her life in the gravest peril, and that she may die in spite of surgical intervention."

John B. Deaver²⁷ says: "The mere fact that a woman has a fibroid tumor of the uterus is in no respect, however, an indication for its removal." In his opinion, no such growth should be removed unless it causes symptoms. In the seven cases mentioned above, there were at the time of examination practically no symptoms, yet as already stated, two of the patients died without operation; one from a degeneration, the other from a complication superinduced by the tumor and in the other five, operation revealed conditions which, had operation not been made, must necessarily have resulted in death or in an operation made on a patient whose vitality had been lowered by disease.

Deaver also states that he is thoroughly convinced that a myoma of the uterus which produces no symptoms is as nearly harmless as any pathologic change can ever be. It will be readily granted that a myoma is harmless as long as it remains harmless, but when one takes into consideration the large proportion of these tumors, which, according to statistics which must be accepted as accurate, do undergo degenerative changes, it is at once evident that time alone is necessary to affect pathologic changes threatening life. So far as the innocent fibroid is concerned, there is nothing so innocent, nothing so treacherous.

In respect to the statement that the dead house reports show large numbers of fibroids with which the women lived a long life in perfect contentment, Noble of Philadelphia says: "For those who are convinced that one of the classical positions is correct, I would suggest that one of the strongest arguments that could be produced in support of their position would be to institute a careful research into the autopsy records of well-managed institutions in order to learn, first, in what proportion of women fibroid tumors are found at autopsy, and, second, what relation these tumors had to the state of health or to the death of the particular patients. It is a classical statement that many women live and die without the knowledge that they have had fibroid tumors. This statement I do not believe, but I would be quite willing to be convinced of its truth on adequate evidence."

Deaver further states, quoting McDonald's article, wherein he reports a series of microscopic studies of 280 cases, that there were 12 cases, or 4.28 per cent. of malignant degenerations; add to these the 14 cases of calcareous degeneration and the 4 necrobiotic degenerations, which conditions under the circumstances, in great probability, would result fatally, not to mention the other degenerations listed, we have 30 cases, or 10.7 per cent. A consideration of other statistics will give practically similar percentages. It is not possible, of course, to say how many of these patients Deaver would have operated on, but it is fair to assume that the diagnosis of the degenerations was not made in all of them before operation. In the same paper he reports a series of 105 cases, with a mortality of 2.85 per cent. His own small death rate is sufficient answer to his argu-

26. *The Lancet*, June 6, 1903.

27. *Amer. Med.*, vol. 9, No. xv, page 601.

ment. Is it at all probable that the death rate would have been so small had these patients, whose cases he quotes from McDonald's table, not been operated on as soon as the tumor was diagnosed? Take the five cases of so-called harmless fibroids which I list out of a series of 169 cases. Would these patients not all have died without operations?

It is a matter of curiosity as to what those operators who assume what Noble refers to as the classical or traditional attitude, do with other conditions in the abdominal cavity, conditions which are analogous in every respect to the so-called harmless fibroid. Recently I removed from a woman aged 73 an ovarian tumor weighing, with its contents, 30 pounds. She had carried this tumor for 25 years; she had never had any symptoms from it and was able to earn her own living. Would these classicists have allowed it to remain? They remove appendices in the interval, and small ovarian cysts; they remove symptomless gallstones from the gall bladder, not on account of any immediate danger, but on account of the fact that in no greater proportion than in fibromyomata of the uterus these various conditions will undergo changes threatening the life of the patient. For the same reason I remove all fibromyomata of the uterus.

In conclusion, considering the statistics, the accuracy of which can not be doubted, the low death rate in hysterectomy in the hands of competent operators and in cases not too long neglected, and particularly the fact that many of these tumors on removal reveal conditions threatening death, and which are not suspected, and can not be diagnosed prior to operation. I am convinced that all fibromyomata should be removed unless there be concurrent conditions which render the operation inadvisable.

DISCUSSION.

DR. FRANK T. ANDREWS, Chicago, said that he is absolutely opposed to the position taken by Dr. Eastman, because it is so dangerous that it is vicious. He has seen many patients go by the menopause; in fact, it is his hope to carry them past the menopause and to watch them get well, and the vast majority do get symptomatically well. It is impossible to say in how many of Dr. Eastman's cases the tumors would have become cancerous if let alone. Few of these cases develop into sarcoma.

DR. W. F. B. WAKEFIELD, San Francisco, declared that he is absolutely in accord with everything Dr. Eastman said. His is true, up-to-date teaching.

DR. J. H. CARSTENS, Detroit, asked in how many cases the growths undergo changes of various kinds, the result of interference with the circulation, and how many patients in a hundred will die if operated on. In his opinion more patients will undergo a change for the worse in the way of malignancy, septic conditions and adhesions if they are not operated on than would die if they were operated on. There is another thing to consider. A fibroid tumor is not appendicitis. An operation for fibroid ordinarily is not dangerous and one can select the time for operation. The patient can be put in such a condition that the operation will be almost free from any danger, and a man may be selected who is thoroughly competent to do the operation. The mortality will then be so small that the point made by Dr. Eastman is well taken. Every orthopedic surgeon operates on club feet, knock knees and deformities of all kinds in which the mortality is as great, and even greater, than it is in operations for fibroid. He operates for esthetic purposes or to restore lost functions, and the operation is justifiable. If the patient is young the tumor should be enucleated; if she is old the uterus and whatever else may be necessary should be removed. To let a woman go around with a tumor for ten or fifteen years is not good practice. It is the physician's duty to relieve the mental

condition of that woman, to ease her mind and to make her mentally and physically comfortable. The patient, however, must be in good condition before an attempt is made to remove the fibroid.

DR. L. H. DUNNING, Indianapolis, agreed with Dr. Eastman in the main, but he would not like to be committed to the dictum that physicians should operate on every case of fibroid. It is true that 18 per cent. of fibroids undergo a dangerous degeneration, and, on the other hand, fibroid tumor operations—hysterectomy and myomectomy—do not, under favorable circumstances, give a mortality of more than 5 per cent.; that is to say, 13 per cent. is gained by the operative method. Many patients carry fibroids for fifteen or twenty years without any knowledge of the fact. They discover them accidentally when they are near the menopause. Many physicians have patients to show that 80 per cent. of fibroids undergo benign degeneration and absorption after the menopause. Given a woman 40 years of age, not suffering from the tumor, Dr. Dunning asked if gynecologists are not justified in assuring that woman that the probabilities are 80 per cent. in her favor that the tumor will disappear without harm to her. He would be exceedingly loth to undertake the removal of a tumor that produces no symptoms. If degeneration is taking place the signs are growth of the tumor, pain, fever, cachexia, increase of menstruation and painful menstruation. Dr. Dunning is of the opinion, based on considerable experience, that physicians are justified in many cases, especially when the patient is near the menopause, in watching the case, allowing the patient to go without operation when there are no symptoms. These patients, as a rule, take the matter cheerfully, and after the menopause their troubles gradually disappear.

DR. D. H. CRAIG, Boston, stated that to propose the rule of operating in every case of fibroid is as much empiricism as is the administration of medicine in certain diseases. It must be remembered that there are patients who need operation and there are some who do not, and the outcome of this discussion should enable gynecologists to distinguish between these two classes. He is not prepared to take sides now; he desires to remain on neutral ground and to decide which patients need operation and which do not. Of course, if the physician does not operate, he must keep the patient under close observation. It seems to Dr. Craig that this is the safest course to pursue.

DR. V. J. HAWKINS, St. Paul, said that he has found fibroids accidentally during confinement ten times where one patient comes to his office for advice. It is not wise to advise every woman who has a fibroid to be operated on. He has had many patients operated on, and they are not well after the operation. If this operation should be performed in every case good results should be obtained in a large majority of the cases, and that has not been Dr. Hawkins' experience. Knowing this, and also that many of these patients get entirely well after menopause, the tumor disappearing, he stated that he can not agree with Dr. Eastman's views.

DR. W. O. HENRY, Omaha, Neb., said that it would be a great mistake to adopt the rule that all patients with fibroid should be operated on. Gynecologists have not yet reached the point in abdominal surgery where they can say that the operation is entirely safe. It is a great mistake to urge operation when the fibroid produces no symptoms, for there is always a possibility that the patient may succumb to the operation, no matter how skillful the operator. Some women have small fibroids, and when the menopause comes on the fibroid disappears. If the tumor does begin to make trouble there is sufficient warning, and then is the time to operate. Women in the child-bearing period have fibroids, and during the involution following pregnancy the tumor sometimes disappears. Each case should be studied individually and treated on its own merits. In reply to a question Dr. Henry said that when the fibroid degenerates there will follow hemorrhage or a profuse discharge of the some kind from the uterus; then there is time enough to operate and save the patient. He has not seen patients die, but has seen them recover after pregnancy with uterine fibroids.

DR. R. T. GILMORE, Chicago, stated that hemorrhage as a

symptom of the beginning of malignancy in fibroid tumors of the uterus is of questionable value, as hemorrhages frequently occur in small fibroids in which malignant changes can not be demonstrated. Hemorrhage especially aggravated at the menstrual periods is almost a constant symptom of simple fibroma.

Dr. C. L. BONIFIELD, Cincinnati, said that two years ago he reported five cases of pregnancy complicated by fibroids which seriously endangered the lives of the patients. One patient required a Cesarean section and two others Porro operations in order to save their lives.

THE AFTER-EFFECTS OF DIPHTHERIA ON THE HEART.*

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It is well known that in diphtheria the heart muscle and the nerves which control it are the seat of certain changes which more or less seriously disturb its function, and the clinical signs of circulatory disturbance at the height of the disease and during convalescence have been carefully observed by many authorities. Much less is known, however, of the after-effects of the poison of diphtheria on the heart.

Veronese¹ says that lasting effects on the heart—except a moderate hypertrophy—do not follow diphtheria.

Romberg² has seen the mitral insufficiency present in convalescence in several cases last several months and then disappear.

Steffen³ reports a case of mitral insufficiency following diphtheria which has been under observation for over four and a half years, and which he considers not a case of relative insufficiency, but of genuine valvular disease.

Baginsky⁴ says that the disturbance of the heart in diphtheria even when not acutely threatening may be important by its persistence for months afterward. Occasionally a chronic myocarditis or mitral insufficiency may be left behind which does not indicate its presence by symptoms of failure of compensation until years later.

Schmaltz⁵ has shown by a careful study of 81 cases of diphtheria with heart complications, that while diphtheritic myocarditis clears up in the majority of cases within a few months, in others it often persists after an attack of diphtheria for several years at least, and probably for life in some. The clinical picture is that of a mitral insufficiency with very few symptoms.

Jacobi⁶ says that after severe epidemics of diphtheria cases of chronic heart diseases are frequent; some cases have arrhythmia and murmurs for life. The physical signs are irregularity of the heart, reduplication of sounds, especially the first sound, with extensive murmurs over the mitral or pulmonic areas and now and then increase of the transverse cardiac dullness. He states that this condition of the heart may be modified by a long period of absolute rest and proper hygiene, with the occasional use of cardiac stimulants.

Last year, in studying with Dr. H. H. Smith⁷ the heart complications in nearly 1,000 cases of diphtheria treated at the south department of the Boston City Hospital, it was found that while severe heart complications are relatively infrequent, moderate disturbance of the heart is very common in diphtheria, as indicated by the great frequency of heart murmurs and a rapid or irregular pulse. It was found that these physical signs of a greater or less degree of cardiac disturbance were of long duration in many cases, making it desirable to watch the condition of the heart long after convalescence.

About one-third of these cases left the hospital after a stay of one or two months with a pulse rate of between 100 to 120 (not including babies), and in about one-third of the cases the heart was irregular at discharge.

In about three-fourths of the patients one or more murmurs were present at discharge from the hospital, which were considered in the majority of cases to be organic on account of their character, position and association with accentuation of the pulmonic second sound and irregular heart action. The condition is probably one of relative mitral insufficiency resulting from changes in the heart muscle.

The large number of children discharged from the hospital with a rather rapid and irregular pulse and cardiac murmurs is very striking, and contrasts strongly with the condition of children at the end of other acute infections, such as measles and scarlet fever, or the condition of adults at the end of such acute infections as typhoid, grip or pneumonia, and it seemed very desirable to keep a group of such children under observation until the heart had entirely regained its equilibrium or until the presence of permanent changes in the heart were evident.

This paper consists of a clinical study of 78 cases of diphtheria with heart complications after their discharge from the Boston City Hospital. The cases have been under observation from five months to a year to determine the frequency, importance and duration of subacute and chronic disease of the heart following diphtheria.

The cases were chosen from a large material as follows: 1,431 cases of diphtheria were treated at the south department of the Boston City Hospital in the last year with a mortality of 136 cases, or 9.57 per cent.⁸ Thirty-three very severe cases survived their illness, and of this number 29 have been carefully followed since discharge from the hospital. These very severe cases, with few exceptions, had serious disturbances of the heart during their stay in the hospital, as indicated by gallop rhythm, marked irregularity, cardiac enlargement, murmurs, and rapid pulse; several had laryngeal stenosis requiring intubation; about one-fourth of the number had severe peripheral paralysis.

In addition, during the last quarter of the year 71 cases whose illness was of mild or of moderate severity left the hospital with well-marked signs of cardiac disturbance, such as enlargement, murmurs, or irregularity. Fifty-one of these patients have reported to me for observation several times a month; two cases of earlier date are also included in our series.

Of the 83 cases which have been carefully followed, 3 have been excluded on account of heart lesions which had developed before the attacks of diphtheria, and 2

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-sixth Annual Session, July, 1905.

1. Veronese: Wiener Klinische Wochenschrift, 1893, vi, p. 305.

2. Romberg: Deutsches Arch. f. Klin. Med., 1892, vol. xlix, p. 413.

3. Steffen: Jahrb. f. Kinderheilk., 1898, xlviii, p. 285.

4. Baginsky: Nothnagels Specielle Pathologie und Therapie, vol. ii, 1899.

5. Schmaltz: Festschrift des. fünfzigjährigen Bestehens des. Stadtkrankenhauses zu Dresden Friedrichstadt, 1899, p. 155.

6. Jacobi: Med. News, 1900, xxvi, p. 729.

7. White and Smith: Boston Med. & Surg. Jour., 1904, cl. p. 433.

8. If cases dying within twenty-four hours of their admission to the hospital are excluded, the mortality is 6.75 per cent.