CASE LXI. Male, twenty. First attack. For two days characteristic pain, chill, vomiting and constipation. Marked localized tenderness, spasm and palpable mass. Gridiron incision. Retrocecal appendix with abscess containing 2 drams of pus. Normal convalescence. Firm scar.

CASE LXII. Male, nineteen. First attack. For two days typical pain with vomiting and constipation. Marked local spasm and tenderness. Gridiron incision. Immediate escape of pus. Gangrenous, perforated appendix, heavily coated with fibrin and surrounded by dense adhesions; entire mass retrocecal. Normal convalescence. Firm scar.

CASE LXIII. Female, forty-three. First attack. For three days characteristic symptoms. Marked tenderness under right rectus and inner part of right lower quadrant. General spasm over same area. Gridiron incision through edematous abdominal wall. Retrocecal abscess containing 4 drams of pus; appendix gangrenous and perforated, extending down over the brim of the pelvis. Normal convalescence. Firm scar.

CASE LXIV. Male, fourteen, deaf, dumb and blind. First attack. For four days vomiting, chill, fever and right iliac pain and soreness. General distention, right iliac spasm and tenderness, and palpable mass size of hen's egg. Gridiron incision. Subcecal abscess containing 1 ounce of pus. Appendix found curled on itself and pointing upwards and inwards. Removed with difficulty. Death on eighth day from pneumonia.

CASE LXV. Male, forty-four. First attack. For two weeks progressively increasing right iliac pain with repeated chills, nausea, vomiting and obstipation. Marked appendicular tenderness with general spasm and distention. Large mass palpable in right lower quadrant. Gridiron incision. Large subcecal abscess containing 10 ounces of foul pus. Appendix found curled upon itself, buried in adhesions, pointing upwards and inwards. Normal convalescence. Firm scar.

CASE LXVI. Male, twenty-seven. First attack. For three days characteristic symptoms becoming progressively worse. Large right iliac mass with localized spasm and tenderness. Gridiron incision. Dense adhesions, containing 4 ounces of pus in several pockets. Mass on the whole retrocecal. Appendix gangrenous, perforated and adherent to omentum. Normal convalescence up to 18th day when sudden death from cardiac embolism.

CASE LXVII. Male, twenty-six. First attack. For three days colicky pains in right lower abdomen without other symptoms. Abdomen generally distended, rigid and tender, with most tenderness just to right of umbilicus where a small mass can be felt. Gridiron incision. Abscess containing 3 drams of pus and a gangrenous, perforated appendix. Normal convalescence. Firm scar.

CASE LXVIII. Female, twenty-two. One previous attack one year ago. For six days general abdominal pain, chill, vomiting and constipation.. General distention, tenderness and spasm, most marked, however, over McBurney's point. Gridiron incision. Swollen, reddened appendix, extending over brim down into pelvis with light adhesions surrounding it; drainage for five days. Normal convalescence. Firm scar.

CASE LXIX. Male, thirteen. First attack. For three days all classical symptoms progressively becoming worse. Marked lower abdominal spasm with localized tenderness in the lower part of the right iliac region, suggesting to palpation an asymmetrically distended bladder. Gridiron incision. Abscess cavity containing 1 ounce of pus. Appendix extending down over brim of pelvis. Normal convalescence. Firm scar.

CASE LXX. Male, twenty-five. First attack. For two weeks grumbling pain in right lower quadrant with fever, vomiting and constipation. Marked tenderness and spasm over McBurney's point; mass size of hen's egg. Gridiron incision. Retrocecal abscess containing gangrenous appendix. Normal convalescence. Firm scar.

CASE LXXI. Female, twenty-five. Two previous attacks. For three days typical history of appendicitis. No distention. Right iliac spasm, tenderness and palpable mass. Gridiron incision. Retrocecal abscess containing 2 ounces of pus and a gangrenous appendix. Normal convalescence. Firm scar.

CASE LXXII. Male, fifteen. First attack. For eight days intense right-sided pain, nausea, vomiting and constipation. For three days delirium and symptoms of septic exhaustion. Large right iliac mass with tenderness and spasm. Gridiron incision. Abscess containing about one pint of foul pus. Gangrenous appendix. Death on fifth day from septicemia.

CASE LXXIII. Female, sixteen. First attack. For five days all classical symptoms. Mass size of hen's egg in right lower quadrant with spasm and tenderness. Gridiron incision. Large subcecal abscess containing 2 ounces of pus. Gangrenous, perforated appendix, high up under cecum. Normal convalescence. Firm scar.

CASE LXXIV. Male, thirty-seven. Third attack. For six days right iliac pain and vomiting; last two days recurrent chills and fever. Considerable sized mass just outside McBurney's point with marked tenderness and spasm. Gridiron incision. Subcecal appendix abscess containing 3 drams of pus. Gangrenous perforated appendix. Normal convalescence. Firm scar.

CASE LXXV. Male, eighteen. First attack. For four days classical symptoms becoming progressively worse. Marked localized tenderness and spasm. Gridiron incision. Large, clubbed, reddened, swollen appendix about to perforate, extending down over pelvic brim. Numerous light adhesions. Temporary drainage for twenty-four hours. Normal convalescence. Firm scar.

CONCLUSIONS.

The incision through the right rectus, as well as that through the right linea semilunaris, is undesirable.

This we conclude because: (1) It is usually not over the appendix; (2) it is frequently internal to the abscess, therefore giving mechanically inefficient drainage; (3) it offers in cases drained a distinctly greater chance of hernia.

The muscle-splitting or McBurney incision is desirable in all cases of appendicitis, unless an abscess is obviously pointing in a remote or unusual situation.

This we conclude because: (1) It opens most often directly over the appendix; (2) it can be enlarged by prolonging the split in each muscle-plane to whatever extent is desirable; (3) it can be drained for a short or a long time without danger of hernia.

THE MUNICIPAL CONTROL OF TUBERCULOSIS.*

BY EDWARD O. OTIS, M.D., BOSTON.

THE subject of municipal control of tuberculosis suggests at once two questions: in the first place, are the conditions regarding the disease

* Read before the Berkshire Medical Society, at Pittsfield, Oct. 26, 1905.

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such and so urgent as to demand active interference on the part of the city and town authorities? Secondly, if so, what agencies are to be employed in establishing and maintaining an efficient control, agencies such as legitimately come within official jurisdiction? You have already answered the first question in the affirmative by your choice of the subject for discussion, and it is hardly necessary to spend much time in its consideration.

Throughout the civilized world at the present moment, tuberculosis is regarded as one of the greatest calamities of modern times, producing untold misery upon thousands of mankind. It is co-extensive with civilization, and exists in every latitude and climate. It is one of the largest, if not the largest, single cause of death. Year after year unceasingly its ravages continue. In the present epidemic of yellow fever in New Orleans which has produced such consternation and terror, and such frantic efforts to control it at enormous expense, the mortality will hardly reach four hundred and fifty deaths, and from previous experience it is not likely to happen for many years, if ever again. The yearly mortality from tuberculosis, on the other hand, in the same city is a little over a thousand, more than twice the number of deaths from the present yellow fever epidemic. But tuberculosis will not only destroy its thousand inhabitants this year, but next year, the year after, and every year. A similar condition exists in every city and country.

Formerly and even, to a certain extent, at the present time, this great prevalence of tuberculosis was regarded with comparative equanimity and indifference as an inevitable concomitant of civilized life from which there was no escape, and, consequently, no organized or concerted action was taken to control it. Now, however, since the disease is known to be communicable and avoidable, and the method of its communication and avoidance has been made clear, the attitude of the physician, sanitarian and, as well, the public, is no longer that of hopeless apathy, but rather one of active interest and aggressive warfare against it.

There is, then, abundant reason intrinsically why the municipality should take active and energetic measures for its control, and ample precedent in the example of other countries and cities. One has only to look abroad and observe the anti-tuberculosis crusade now in progress throughout the civilized world. In our own country we have the National Association for the study and prevention of tuberculosis, with many state and local societies of a similar nature. Sanatoria already exist in a number of states and are projected in many others.

Taking up the second question of the methods to be employed in the control of the disease, and which can best or only be initiated and conducted through the instrumentality of the organized city or town governments working through their boards of health, we have, first, the compulsory notification and registration of all cases of tuberculosis, for you must locate the enemy before you can attack him. In this state (Massachusetts) one has only to put tuberculosis on the list of contagious diseases to make the state law requiring the notification of all such diseases applicable to it. If the physicians will only recognize their duty to the community in reporting all cases in which the diagnosis can fairly be made out whether or not tubercle bacilli are discovered in the sputum, the board of health will thus be enabled to track the disease, which is the first step towards the control. As tuberculosis is most prevalent in the crowded, unsanitary quarters of the poor, it is of the first importance that a complete registration of the cases in the tenement-house district should be obtained so that the foci of infection can be kept under surveillance. There will always be some cases which employ no physician, at least regularly, and such either go undetected or are discovered by chance. Hospitals and dispensaries, when they exist, societies for the relief and control of tuberculosis, through their visitors or district nurses, can co-operate with the board of health in the work of discovering the cases. But, after all, it is the private physician upon whom we must principally rely.

Having found the cases, what is the next step? Unless the patients are in such families or under such medical supervision as will give assurance that proper prophylactic measures will be established and maintained, the board of health sends an agent to the home or lodging of the reported case, whose duty it is to instruct the patient and his family as to the safe disposal of the sputum, and, in general, how the consumptive can make and keep himself innocuous to those about him. Such a visit should be repeated at stated periods if the patient is not sent away to sanatorium or hospital, or the district nurse or Tuberculosis Association visitor can make these subsequent visits of inspection. When advanced, bedridden cases are found without means of proper care, and who are an evident menace to the rest of the family, they should be removed and isolated in some institution if such exists. There is urgent need everywhere of consumptive hospitals where advanced cases can be isolated and cared for. The board of health is clothed with ample power to remove a contagious case, as tuberculosis is, when in its opinion protection of others demands it.

After the death or removal of a tuberculosis case, the room occupied by him should be thoroughly cleaned and disinfected in the usual manner for contagious diseases. It is frequently difficult, if not impossible, to ascertain the fact of the removal of a consumptive, for the tenement house dweller changes his abode so often. The visitor or district nurse in his periodic visits will be very helpful in this respect. Investigation has shown that the occupancy of an infected tenement by a new family is a prolific source of disseminating the disease; and it would be safer if all landlords were compelled to clean and disinfect a tenement, as is the local requirement in some health resorts, to the satisfaction of the board of health before permission was granted to rent it to another family.

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An ordinance against promiscuous spitting, promulgated by the state, city or local board of health, is now quite general, such prohibition applying to spitting in public vehicles, stations, halls and other places of public resort; sidewalks should also be included, as is done in the town of Brookline and other places, for trailing skirts and shoes can carry tubercle bacilli into the houses. In order to render such a law more effective than it now appears to be, spittoons should be liberally supplied in public places, and attention directed to them by the sign, "Spittoon. Spitting on the floor forbidden." In this climate during the colder months of the year, a large number of persons suffer from "colds" accompanied with more or less abundant secretion, and it is a hardship not to afford them proper means of getting rid of this by expectoration. Indeed, spitting may be regarded as nature's method of cleaning the mouth; at least, it is the poor man's way. Therefore, spittoons conveniently located in public places, stations, smoking cars, etc., should be liberally supplied.

The free examination of suspected sputum is now quite generally made, either by the state or city boards of health, or by both; and it is a service of unquestioned value in our efforts to control the disease. There is, however, a possible danger, in my opinion, in this apparently easy way of making a diagnosis of pulmonary tuberculosis, a danger inherent, it may be said, in all laboratory-made diagnoses. The physician may be tempted to rest his case entirely upon the findings of the microscope to the neglect of a careful clinical examination. In many, perhaps most, cases of early pulmonary tuberculosis, tubercle bacilli are not present in the sputum, at least in one examination, and yet tuberculosis exists, only the process is in what we may call the "shut" stage in contradistinction to the "open" one when disintegrated tubercular tissue communicates with the bronchial tubes. If the physician, after taking into consideration the sum total of the symptoms and physical signs, is reasonably certain that the case is one of tuberculosis, he should so regard, treat and report it, whether or not tubercle bacilli are found in the sputum. If the bacilli are present, the diagnosis is, of course, without a doubt — the laboratory has made it; if they are absent, however, tuberculosis may exist just the same, and in this case the responsibility rests upon the physician to detect it. It cannot be urged too forcibly upon the medical public that one of the most important means of controlling tuberculosis is its early diagnosis of which so much has of late been said. A case discovered early and submitted to timely treatment and arrested, means at least one less dangerous advanced case, and how many others may be infected by it who can say?

The municipality can, then, in these five distinct lines of endeavor exert itself in controlling tuberculosis, viz.: (*a*) by requiring notification and inspection of the cases and their habitat; (*b*) by disinfection; (*c*) by the isolation of dangerous cases; (*d*) by the prohibition of promiscuous spitting; and (*e*) by the free examination of sputum.

It will be noticed that I have not referred to the inspection of milk in this connection, and I have designedly made this omission, because I believe, with Koch, Theobald Smith and others, that bovine tuberculosis is different from human, and that the former is but slightly infectious to man, so that the danger of tuberculosis from milk appears to be comparatively insignificant. For other reasons, however, as well as from this slight possible danger of tuberculosis, the city should maintain a rigid milk inspection, as is now indeed required in most large cities. It is to be borne in mind that the primary province of the municipality through its board of health, or otherwise, is the safeguarding of the communal health. To *protect* its citizens from disease is the especial function of the state or city, not to *treat* disease, although the latter is incidentally accomplished in the execution of the former, in the case of infectious diseases. To remove a contagious case to a hospital for the purpose of isolation involves the treatment of such a case during the period of isolation.

Outside, then, of the legitimate work of the board of health, a large field is left for individual and associated effort, if tuberculosis is to be completely controlled and eventually eradicated. Such effort can be directed towards the relief and treatment of poor consumptives, in the enlightenment of the public as to the dangers of tuberculosis and their avoidance, and in obtaining their co-operation in the tuberculosis warfare. All social efforts directed towards the improvement of the personal and environmental hygiene of the people, and all efforts towards improving the health of the masses indirectly, though very positively, tend toward the diminution of tuberculosis.

Associations for the relief and control of tuberculosis, both state and local, are rapidly springing up in this country, and are accomplishing much good in various directions; they enlighten the people upon the dangers and prevention of tuberculosis, by means of literature, lectures and tuberculosis exhibitions; they visit the consumptives among the working people and the poor, and teach them proper consumptive hygiene; supply them with pocket spit cups or paper napkins, and furnish proper nourishment in needy cases; obtain entrance into sanatoria or residence in the country for others, and follow up those discharged from the sanatorium and procure for them wholesome employment. Furthermore, such associations, by co-operating with the boards of health, can be mutually helpful.

Another valuable aid in the control and relief of tuberculosis is that of the day sanatorium carried on during the warmer months of the year, the first one of which in this country was established the past summer in Boston under the management and initiation of the Boston Association for the Relief and Control of Tuberculosis. This scheme had its origin in Berlin in 1899, and has been adopted in other German cities, and,

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to a limited extent, elsewhere in Europe. An open and preferably shaded tract of land is selected within easy access of the crowded centers of population — in the Boston experiment an orchard, at the summit of Parker Hill in Roxbury, within two miles of the State House was obtained through the courtesy of the trustees of the Robert Brigham Hospital Fund. Rude temporary buildings or tents are erected at small expense to serve as kitchen, dining-room, and for shelter in case of rain. The patients come at an early hour in the forenoon after taking breakfast at home, and are given lunches and dinner prepared on the ground. They spend the day outdoors, principally at rest under the trees, and are under the supervision of a physician and nurse. In the evening they return to their homes for the night to repeat the experiment the next day. The results in the Boston camp, which is just coming to a close, have been highly satisfactory not only in the general improvement of the patients, but in the lessons inculcated of the advantages of open-air life, rest, good food and in the proper care of the sputum. Such a day camp or sanatorium for consumptives among the poor who cannot go away from home, from its simplicity and comparative inexpensiveness, would seem to be practicable for any city, large or small.

The tuberculosis dispensaries which have quite recently been established in many cities, are rendering valuable service in the direction of control as well as treatment and relief. The New York local board of health conducts one under its immediate supervision. The work of these institutions is not only to examine and treat the consumptive poor and provide them with sputum receptacles and sometimes with food, but through their visitor or district nurse, to visit them periodically at their homes, and show them how to care for themselves and take advantage of all the favorable conditions at their disposal, as well as how to protect their family from infection. As with the tuberculosis associations, these dispensaries can co-operate with the board of health with advantage to both.

The tuberculosis exhibition is a recent and popular method of interesting the people in the subject of tuberculosis. By means of models, charts, diagrams, photographs and other graphic representations, the facts regarding the disease, its prevalence, control, means of prevention, treatment, sanatoria, open-air life, etc., are portrayed. I may, in this connection, call attention to such an exhibition to be held in Boston the coming winter, for which the Legislature at its last session made an appropriation.

In conclusion, it is pertinent to this subject to ask if the municipal board of health or the municipality can increase its functions advantageously in its efforts to control this disease. In addition to the five different lines of activity already mentioned, I would suggest the following extensions of its work of control:

First, and by far the most important, the provision of adequate accommodations for the isolation of advanced cases which cannot be properly cared for at home.

Second, the free distribution of inexpensive spit cups or paper napkins, with printed directions or oral instructions as to the dangers of the dried sputum. This is already done by some boards of health, I believe.

Third, in cities and towns where there are factories and workshops, a medical inspection of the employees, or at least of those who have been noticed by the overseers to cough and spit; and at the same time general instruction should be given to all the employees as to the dangers of promiscuous spitting. This is already done in some places in Europe.

Fourth, tenement-house inspection with reference to overcrowding, air spaces and general hygienic conditions.

Fifth, in the medical inspection of schools, already a requirement in most of the large cities, especial attention to be given to the detection of tuberculosis among the scholars, the teacher co-operating with the medical inspector; and scholars showing any symptoms of the disease to be submitted to a careful examination.

In the smaller towns the physician himself has often to be the originator and largely the executor of methods of control, for he is generally the advising and directing power on the board of health. Although the cases of tuberculosis as of any other disease are numerically small, their proportion to the whole mortality may be as large or larger than that in the cities, as has recently been shown so graphically by Dr. Joslin in the case of the town of Oxford of this state, where the average rate of mortality from consumption was greater than that of the whole state of Massachusetts during the last half century.[1] It is incumbent, then, upon the physician of the small town to labor for the control of tuberculosis with the same eagerness and determination as he would or should exhibit if contending with a larger number of cases in a larger place. The methods which he will employ, though in general the same as everywhere in vogue, must be wisely adapted to the peculiar conditions of his town. The cases are so few comparatively, that each case can receive individual attention, and be discovered with ease.

The whole civilized world is speaking and acting with no uncertain meaning in regard to tuberculosis; it is determinedly set towards stamping out the disease. The mere recital of the anti-tuberculosis crusade would require a volume. There can be but one ultimate result of this great movement; sooner or later tuberculosis will be practically exterminated. Each of us, however, must do our part in the warfare, and the more eagerly we all respond to the call the sooner will the final consummation come, and then each of us will have added to our life expectancy or that of our children a few more years and be free from the intolerable incubus of this dreaded disease which has brooded over mankind for untold years.

[1] Joslin, Elliott P., M.D.: Consumption in a Massachusetts Town, Boston Medical and Surgical Journal, Oct. 19, 1905.

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