

strated that the inner caliber of the cricoid cartilage would not permit the passage of the smallest tube of the O'Dwyer set. In a case of my own, a partial ankylosis of the jaw precluded a proper manipulation of the instruments. A sphincter-like spasmodic closure of the larynx interrupting the passage of the tube is a real possibility. I have seen this happen in laryngeal diphtheria in a girl of twenty years of age on whom I was making intubation under laryngoscopic observation. With two phases of this subject I have been especially interested—the posture method of feeding, and intubation in the adult. Intubation in the adult is a good procedure when you can perform it under laryngoscopic observation, but I have warned the profession against it when the patient is moribund or recumbent, usually on a slouchy bed and unable to sit up, and when the diagnosis is not accurately made. In such emergency cases, usually of erysipelatous or infectious edema of the larynx or those with an underlying syphilitic or tuberculous stenosis, tracheotomy is much the safer and more satisfactory operation. One's index finger is too short to guide the tube in most adults, and, moreover, the mere insertion of the finger into the throat when the patient is already *in extremis* may cause immediate death. The so-called posture method of feeding after intubation of the larynx, which originated, and which was instrumental in popularizing the operation by satisfying the distressing thirst of patients without the danger of "swallowing pneumonia," consists in feeding while the head and chest are inclined downward, at such an angle as to preclude liquids from gravitating through the tube into the lungs, the ability in this position to "swallow upward" being, of course, retained. I wish to report continued success and satisfaction with this method of feeding with the head and chest on a downwardly inclined plane.

DR. KATE W. BALDWIN, Philadelphia—I will say for the benefit of those teaching on the cadaver, that it is of advantage to do a preliminary tracheotomy and thereby control the tube with the finger from below. It adds very much to the facility with which the tube is introduced and also in the removal.

DR. B. R. SHURLY—I should like to see the day when we can have an expert intubator in every large city. There are a great many practitioners in our city who have returned from courses in the east without being able to do an intubation, and I can not agree with Dr. Casselberry that intubation is easily learned, even with courses of instruction. I have trained my students carefully with the phantom, the cadaver and on the dog, and by the time they were through they were able to perform the manipulations. Yet I am often called in by some of these very men for cases of not unusual difficulty. There are new indications which have developed since we began to use large doses of antitoxin. The tube can be removed much earlier, especially when the string is left on. The fact that I have had so many cases under my observation in Detroit is due to the large Polish settlement there. They are densely ignorant, live in unhygienic conditions, disease thrives among them, and they will not call in a physician until after the disease is under way three or four days. This makes intubation necessary in a great many cases.

Graduates of Medical Schools.—In THE JOURNAL, Aug. 13, 1904, we published a table showing the results of state board examinations in 1903 and remarked that many deductions might be made from the tabulated facts, but that we left it to others to make them. In a letter to the editor of the *New York Medical Journal* a correspondent has made certain deductions from the standpoint of a Philadelphian. He shows that graduates of the Philadelphia schools give a smaller percentage of failures than the graduates of schools in other cities and that the proportion of failures by graduates of Washington schools was more than three times that of the graduates from Philadelphia, and of those from Baltimore, Louisville, and St. Louis, respectively, it was over *four, five* and *six* times that of the Philadelphia candidates.

A CHIEF PREDISPOSING CAUSE OF APPENDICITIS.

A PRELIMINARY NOTE WITH A FEW LABORATORY EXPERIMENTS.*

GEORGE RUBIN, M.D.

[From the Pathological Laboratories, Rush Medical College, University of Chicago.]

CHICAGO.

One evening in the fall of last year I was called to the bedside of a man who had suddenly become ill with symptoms typical of acute appendicitis, viz., chills, nausea and vomiting, general abdominal pain and local tenderness over the ileocecal region. The patient's history was as follows:

An American, of German extraction, 40 years of age, unmarried, stenographer, almost a total abstainer, and of excellent habits in general. Family history excellent. He has always been well, with the exception of a diarrhea several months ago, of a few weeks' duration, from which he made a complete recovery. For a week or so preceding his last illness he was troubled with flatulency, though it caused him slight inconvenience.

After remaining in bed for ten days, and with appropriate medical treatment, the patient made an uneventful recovery from appendicitis.

In considering the case in all its bearings, but especially with regard to the intestinal flatus preceding his attack, the following questions arose: Why is appendicitis rare in infancy and early childhood and also in persons of advanced years? If, according to some authors, who claim that appendicitis is due principally and primarily to infection or to an extension of infection from the bowel, then the disease ought to be by far more common during the early years of childhood. The susceptibility at this time to infection in general, and especially to intestinal infection, is well known; at least there are no *a priori* reasons for believing that infection of the appendix from the bowel or through other channels, e. g., lymphatic or blood system, might not occur as readily in infants as in adults. We might assume from this that infection occurs at a later stage in the evolution of appendicitis.

The etiologic connection between appendicitis and fecal concretion, though not emphasized as much at present as formerly—in many text-books, however, still occupies a conspicuous position. If this were an important factor in the production of appendicitis, the disease would surely be more common in persons advanced in years, owing to their greater liability to formation of concretions and calculi generally. If the same conditions govern the development of concretions or calculi in various parts of the body, then we might also rightfully expect women to have appendicitis more frequently than is the case, judging from their marked predisposition to gall-stone disease.

Constipation is, according to a number of authors, a condition that favors the development of appendicitis. But such a view becomes untenable in considering the great disproportion of appendicitis in the sexes. If constipation really played an important rôle in predisposing to this disease, instead of having one female to about three males, the converse would surely be the case.

The occurrence of appendicitis in about three-fourths of all cases between the ages of 10 and 30, also appears enigmatic from the point of view of infection as the primary cause, considering the greater resistance possessed at such a time than by children under 10 years of age.

* Read before the Chicago Medical Society, May 11, 1904.

An explanation that would answer all the foregoing questions rationally is, I believe, the following: The accumulation of gases below the ileocecal valve and their voluntary retention;¹ the ensuing distension of the cecum and dilatation in various degrees of the ceco-appendicular orifice; the entrance into the appendix of larger fecal masses than are readily expelled; the interference with the vascular circulation and resulting erosion of the mucosa of the appendix with subsequent infection; these altogether give rise to a series of symptoms well known to you all.

Let us now see how this explanation will fit the several questions under consideration. First, regarding the rarity of appendicitis in infancy and early childhood; such individuals are not likely to retain gases voluntarily; as soon as there is a certain amount in the colon and rectum it is passed off automatically, hence no distension or overdistension of the cecum and no impaction in the appendix take place.

The same argument will hold good, I believe, regarding the rarity of appendicitis in anthropoid apes; Bland-Sutton² states, "In all the specimens of anthropoid apes which have come into my hands for dissection, I have always made a point of examining the appendix, and have never succeeded in detecting disease or even concretions."

J. H. Campbell, also quoted by the same author, has examined a large number of monkeys from the gardens of the Zoological Society of London, and also failed to find appendicular disease.

It will perhaps be well to mention a conversation I had with Dr. Hassin (now of this city), who had practiced medicine in Siberia for four years, a part of that time in the capacity of a military physician, where he says appendicitis is exceedingly rare, and the same he says is true among the moujiks (peasants) in Russia. Another conversation I had with Major Farrell of this city, who had had considerable experience (in the capacity of army surgeon and otherwise) with the natives of the Philippine Islands, South Africa, the West Indies, New Guinea and Borneo, has also shown that appendicitis is exceedingly rare among them.

It will also be interesting to consider in this connection the rarity of this disease in asylums and among imbeciles. One would expect a much larger proportion of cases in such individuals owing to the fact that their digestive organs are greatly overtaxed by excessive amounts of food as well as by all sorts of foreign substances and indigestible articles. If healthy persons should subject their digestive organs to similar treatment the outcome might be very different. It has often been observed that attacks of appendicitis follow indiscretions in diet. Such occurrences might be explained by the abnormal production of gases due to increased fermentation which, in consequence, under certain conditions, cause a distension of the cecum and hence favor an attack of appendicitis.

Now relative to the infrequency of the disease in elderly persons, we know that the latter lead, comparatively speaking, a more retired life; they stay at home the greater part of their time, and are mostly so situated that they are not obliged to retain their bowel contents—including gases—for hours at a time, as is often the case with younger persons. Another explanation might be the persistence of certain anatomic peculiarities, mode of

life or other conditions which helped them to escape the disease in their earlier years.

The occurrence of appendicitis in nearly three-fourths of the cases between the ages of 10 and 30, may be explained by the fact that these decades are spent principally in schools, colleges, universities and similar institutions. It is also the most propitious period of life for amusements of all sorts, e. g., theaters, receptions, balls, parties, etc., and especially is this true of the latter decade.

The great disproportion in the sexes can be largely explained on a numerical basis. It is a fact that there are more males in the various educational and professional institutions than females; furthermore, nearly all men spend their days in offices or other places of business where, owing to the urgency of their affairs, they very often have to forego certain natural demands for various lengths of time. Meetings of societies, clubs, lodges, directorial boards, juries, etc., where men remain closeted for hours at a time, ought also to be seriously considered. Traveling might be added to the above list.

In view of the foregoing arguments, all of which seem to corroborate the theory proposed, the following experiments were undertaken. The technic was as follows:

Portions of bowel about 50 cm. long, including cecum and appendix, were resected from subjects dead of diseases other than would affect that part of the intestinal tract. After cleansing the bowel the colonic end was ligated; shot ranging in size from 4 to 11 metric scale, peas and beans were introduced through the ileum end, and the bowel manipulated so as to imitate peristalsis more or less. The rolling of these bodies was often done with more vigor than normal peristalsis would effect. It was observed that none of the contents entered the appendiceal cavity, although the appendix was held at the most pendant point. Then the bowel, still containing those substances, was inflated, the same process of rolling repeated, with the result that in all the experiments with one exception (where only one small shot entered owing to an hypertrophied appendiceal wall and a constricted lumen) the appendix was filled with shot, and in two cases peas of medium size also gained entrance. Ten such experiments were carried out. It may be added here that the appendix was readily ballooned during the process of inflation. It is reasonable to suppose that similar phenomena might occur in the living.

The amount of pressure employed in the experiments and that which might occur in the normal living subject is a matter of conjecture. It seems that much less gas would be required to dilate the ceco-appendicular orifice in the living than is the case with the laboratory experiments, owing to the pressure brought to bear on the cecum by the surrounding structures and especially by that of the abdominal wall.

Fitz recorded nineteen out of 257 cases of appendicitis that were supposed to be due to indirect violence. Such cases might be explained in the following manner, first the forcing of a larger mass of fecal matter through the ceco-appendicular opening than the appendix is able to expel, following that, trauma to the mucosa with subsequent infection taking place. It seems not improbable that heavy labor, such as lifting, may operate in a similar manner, i. e., owing to the increased intra-abdominal pressure produced by tension of the abdominal wall. Athletics might be considered in the same category. These considerations help us also to explain the marked disproportion in the sexes.

Regarding the size of the obstructing mass no definite

1. With some exceptions when it might be involuntary, i. e., obstruction anywhere between the cecum and anus.

2. A private communication to Kelynaek, from the latter's book, "The Pathology of the Vermiform Appendix," 1893, p. 5, London.

statement can be made. The calibers of appendices vary very much. What would be an insignificant particle for one might completely obstruct another. Likewise little can be said about the rôle the valve of Gerlach plays in preventing matter from entering the appendix. Of the several specimens of bowel that I have examined, in only one was there a lengthening of the mucosa that might have been called a valve.

Under ordinary circumstances the mucous lining itself is sufficient to act as such.

Van Zwollenberg³ has recently published several series of experiments in which he shows that obstruction is a chief factor in the production of appendicitis, but he considers the subsequent distension of the appendix with fluid, which impedes the circulation, to be the essential cause. That the circulation of the appendix might be more readily interfered with from an inflammation of the lymphoid tissue in which the appendix is especially rich, apparently escaped his notice.

Distension of the appendiceal cavity with fluid would take place rather gradually, and symptoms—if any were produced—would not come on so abruptly. Furthermore, cysts of the appendix are not very uncommon and they are seldom associated with inflammation of that organ. I found one in the course of the several experiments, where the distal half of the appendix contained a considerable amount of fluid with no other abnormal changes.

Importance has been attached by some authors to Clado's discovery of a special peritoneal fold connecting the ovary and appendix (appendico-ovarian ligament). Its supposed extra blood supply is thought to explain the comparative infrequency of appendicitis in females. Even if Clado's ligament were a constant anatomic structure (which it is not), it would not explain the disproportion of the disease in the two sexes, or the rarity of the disease in male infants and young boys and in old men, since the main arterial supply is seldom primarily affected from the inflammatory process within the appendix wall.

Before this question will be definitely settled further experiments will, perhaps, be necessary.

In conclusion I wish to sincerely thank Professor Le Count for many suggestions and in supplying me with material. I am also greatly indebted to Drs. Bassoe and Stober for their kindness in providing me with desired specimens for the experiments.

Clinical Reports.

A CASE OF PRECOCIOUS MENSTRUATION.*

M. J. FORD, M. D.,
OMAHA.

Patient.—I was recently called to see a child who had swallowed a baby pin and was at once struck with the unusual development of the child. It was two years and four months of age, but had the body and limbs of a much older child.

History.—The child was born May 13, 1902, and the mother noticed soon after its birth that the external genitals were enlarged. She asked her attendant about it and was told that it was a little swelling, which would soon disappear. The child was fretful and cried practically all the time when awake till it was six months old. Its sleep had never been good, and it was always restless. When six months old the mother noticed that the child was bleeding as if menstruating. The flow became very free and the child sank into its first peaceful sleep. The flow continued for 3 or 4 days, just as

mother, but she did not consult her physician. After 28 days the flow again made its appearance and continued for the same time and in the same quantity. Since then the child has menstruated every 28 days regularly for the same number of days and showing the same quantity, soiling 2 napkins a day, except that on two occasions there was a little delay, corrected by warm drinks and foot baths.

Family History.—There is nothing abnormal to be found in the history of the grandparents or parents. The parents are Americans, aged 33 and 32. The mother began her menstrual life at 14, and it has been a normal one. The only peculiarity noticed was that she was unable to feel well and hearty in this pregnancy as in two previous ones. Nausea was not unduly prolonged in early pregnancy.

The mother reports that the child, though fretful and restless prior to the establishment of menstruation, has been perfectly well ever since. Other than the condition named as preceding the first menses, there has been no prodrome to the successive menstruations. The mother has seen nothing to indicate any attempt to masturbate. The child opposes exposure more than ordinary children of her age and shows decided modesty.

Examination Before the Society.—The child is of normal height and face for one of her age. The breasts are well developed and of good size, as are the nipples. The trunk and legs show the development of a much older child. The hips are broad and rounded, and the calves well developed. The mons veneris is large and covered with a good growth of long, silky hair, which is light in color but beginning to change to a darker shade. The labia are large and very prominent.

Comment.—So far as the literature in private and public libraries shows, there is but one recorded case of menstruation before the age of one year, and that showed the establishment of the menses just prior to that age. This case is unique in that the menses were established at apparently the earliest age on record.

FIBRO-ADENOMA OF THE LACHRYMAL GLAND.

LYMAN SKEEN, JR., M.D., PH.D.
OGDEN, UTAH.

Patient.—Mr. J. A. T., aged 82, came to me in July, 1904, with a tumor the size of a hazel nut at the outer canthus of left eye.

History.—A history of gradual development with no pain was obtained. The patient had been told that cancer existed and the sun glass and x-rays had been used as treatment. One operation on the under surface of the lid had been done before I saw the case.

Examination.—The tumor was pressing on the eyeball and interfered with its movement; a portion of the growth presented below the border of the upper eyelid. A clear fluid was discharged from a sinus near the outer edge of the orbit.

Diagnosis.—Benign tumor of the lachrymal gland.

Operation.—Under general anesthesia the entire mass was removed *en masse* through an incision along the eyebrow. On microscopic examination it proved to be a fibro-adenoma of the lachrymal gland. The wound healed without complications and with no tendency to recurrence.

I present this case not only because of the rare occurrence of tumors of this gland, but because of the excellent result obtained by this radical operation.

Mouth and Rectal Temperature.—Ostenfeld writes to the *Ztft. f. Tuberkulose*, V, 5, to extol the advantages of the rectum for determination of the temperature in tuberculosis. By careful comparison of the temperature findings in the mouth and in the rectum it is possible to determine the difference for each individual. When this is once ascertained the temperature can then be taken in the mouth thereafter, making allowance for the difference.

3. THE JOURNAL A. M. A., vol. xlii, No. 13, p. 820.

* This case was presented to the Omaha (Douglas County) Medical Society, Sept. 27, 1903.