typical bile-pigment reaction we may conclude that the bowels are pervious, and that peristaltic action is continuous throughout the whole tract."

Lead poisoning has been mistaken for intestinal obstruction. Here the diagnosis must be derived chiefly from the history. In syphilis the obstruction, according to Mr. Bryant, is caused by ulceration, especially of the rectum.

The most important differential diagnosis from the point of view of treatment lies between strangulation and impaction or closure of the intestines, occluding the lumen, whether from within or from without. When palpation under ether fails to disclose the nature of the tumor, the anamnesis is of importance. The family tendency, the fact of injury or of surgical operations, of previous attacks of similar nature, of hernias, reduced or not, of the ingestion of indigestible substances, poisons, etc., should be inquired into. The clinical history usually enables one to decide between the acute and the chronic, the febrile and non-febrile, complete and partial forms. Examination per rectum should never be omitted, and much may be accomplished in certain cases by the persistent use of high-up injections. The employment of purgatives or opium is both misleading and dangerous, and the only word to say about treatment is this, namely, that whenever the diagnosis of intestinal obstruction, acute or chronic, whether by invagination, occlusion or strangulation, is made, a surgeon should be called to the case. The operation of celiotomy in experienced hands is comparatively safe, and may be the means of saving many lives. The fatal result comes usually from overdistention of the gut above the seat of obstruction. None of the means pointed out should be neglected, so that one may arrive without delay at a correct diagnosis. No positive and definite line can be drawn, however, which will apply to all cases, and death has been known to occur from intestinal obstruction in forty-eight hours and even less, without severe pain, marked distention or much vomiting.

Clinical Department.

A PHYSIOLOGICAL SOLVENT IN THE TREATMENT OF PUS GASES.[1]

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THE physiological function of gastric juice is to break down and dissolve all the alimentary proteids, converting them into soluble albumoses and peptones. The gastric juice is also antiseptic and bactericidal, and thus not only enables us to appropriate food, but confers in health a certain immunity against sources of infection in food and drink. These are no doubt familiar facts; but when my attention was recently called to the use of an artificial gastric juice as a solvent for pus and broken down tissue, they took on a new significance. The technical employment of artificial digestion *in vitro* in the production of peptones from various food proteids is already long established. The proteid matter of suppurating tissue is in its nature quite as responsive to the enzymic action, and is even more penetrable than ordinary masses of food.

I was, therefore, impelled to give consideration to this suggestion, new to me, of gastric juice as a physiological solvent, as presenting on *a priori* grounds obvious advantages over chemical agents. In H_2O_2, for instance, which is of undoubted value, there is the disadvantage of its creating much gas, which produces pressure, which pressure may be beyond our power to control. Whilst the broken down tissue is not destroyed, the soluble substances into which it is converted by enzymic action are readily removed by irrigation, and the artificial gastric juice itself is incapable of producing systemic poison.

The product which I have used, enzymol, is a sterile fluid, which, when diluted with an equal volume of water, has about the acidity of normal gastric juice, and is then suitable for use in most cases. It possesses great proteolytic energy. It exhibits marked action as an antiseptic and deodorizer, offensive odors yielding to a few applications. It has agreeable qualities, and does not produce irritation except in cases of sensitive mucous membrane.

In some cases the matter readily yields to the solvent; in others it is necessary to keep the solvent in prolonged contact, with repeated washing and renewed application. In every case the procedure is based upon the fact that the action is essentially physiological, not at all similar to that of a chemical which instantly attacks the surface it touches.

CASE I. The first case that I used this on was an old middle ear and mastoid case in which there had been a foul-smelling discharge from the external ear, and also behind the ear through a fistula in the mastoid bone. Three injections of a 50% solution of enzymol at intervals of twenty-four hours stopped the discharge entirely. There has been no further discharge, now seven weeks after its use — this without any other treatment. This ear had been continually running for two years in spite of frequent cleansings and treatments with H_2O_2, boracic acid in powder and solution, corrosive-sublimate solution, aristol, iodoform, iatrol, etc.

CASE II. Acute purulent otitis media. The patient, a girl twelve years of age, came to my office January 11th with a typical case of otitis media acuta purulenta. The ear had been running ten days. The discharge was copious but not foul smelling. This was treated with injections of hot boracic-acid solution, followed by instillations of H_2O_2, into the ear three times a day for twelve days. I then injected a 50% solution of enzymol into the ear, and instructed the mother to do this twice a day. Eight days later the patient returned with the history that after the injections had been used three times at home the discharge had entirely ceased, and there had been no more discharge. Examination showed that there was no discharge, and that the hearing was practically normal.

CASE III. Young man, age twenty. Polyps in both ears, or rather stumps of snared-off polyps. There had been a very offensive discharge for months, which had been aggravated by an attack of influenza. One week's use of enzymol, an injection of 5 drops of a 50% solution twice a day, stopped the discharge in a week, and the accompanying foul odor. Seen a week later there was still no discharge and no odor.

CASE IV. Baby, one year old. Vaccination sore,

[1] Read before the Waterbury Medical Society, November 12, 1900.

deeply ulcerated and covered with foul-smelling pus and broken down tissue. Four applications, at intervals of twelve hours, of a 50% solution of enzymol caused the ulcer to be dried, healed and non-odorous. At the first application there was considerable smarting, lasting a few minutes. The subsequent application caused no pain.

CASE V. Adult, female. Ulceration of triangular cartilage of months' standing. One application thoroughly rubbed in caused this to heal, though it again ulcerated some weeks after.

CASE VI. Baby, cervical abscess. Abscess opened, washed out with enzymol once, entirely healed three days later.

CASE VII. Girl, eight years old. Abscess of neck due to broken down lymphatic glands. Opened and enzymol used daily. This was a case which should properly have been curetted, but I wished to see if enzymol would disintegrate the remainder of the gland which was not broken down. It did not do this, but did keep the wound sweet and clean, with a healthy granulating surface.

CASE VIII. Abscess of arm in a man, probably tubercular. This was opened, and enzymol, 50% solution, injected into the abscess cavity, which was healed in two days.

CASE IX. Ulceration of septum, syphilitic, with troublesome formation of crusts. Enzymol used, 33% solution twice a day for one week, almost entirely relieved the patient of this condition.

CASE X. Boy, fourteen years old, came into the Waterbury Hospital with an abscess probably appendicital in origin. This was opened and 16 ounces of foul-smelling pus with broken down tissue was evacuated. Enzymol, 50% solution, was used in this cavity, with the effect of quickly stopping the foul smell and the formation of pus. The enzymol was injected twice daily and later every other day. The cavity is healed, there being only a small sinus left, which is quickly healing. The enzymol was left in the cavity ten minutes and then washed out with normal salt solution. The wound became infected shortly after the operation, and was covered with a thick fibrinous deposit. The effect of enzymol on this was particularly interesting and instructive. It could be seen to dissolve the membrane and leave a bleeding, healing surface.

CASE XI. Man, a caster, injured by having molten lead fall in top of shoe between shoe and foot and burning the top of foot severely. This wound was seen three days after injury, and the condition was as follows: A destruction through entire thickness of skin forming an ulcer 2 inches in diameter and covered with a foul-smelling slough. This wound was treated by binding absorbent lint soaked in 50% solution of enzymol, and at the end of three days the appearance was that of a clean, healing, granulating wound.

CASE XII. Man. Extensive cellulitis of front and side of chest wall. In this case large amounts of enzymol were used by injection through drainage tubes, and into several deep pockets formed by broken-down cellular tissue. The results here were extremely satisfactory, as the enzymol fairly dissolved the broken down tissue so that it could be easily washed out through the drainage tubes.

I tried enzymol in a case of chronic cystitis, but was disappointed in its action, as from its former use I was led to believe that I had found a remedy *par excellence* for this troublesome class of cases. I used both a 50% and 33⅓% solution, but the symptoms were aggravated, and I abandoned its use for other remedies. In another case I should recommend a much weaker solution and should hope for better results.

I have used this remedy in nasal wounds, such as division of synechiæ and operations on the septum, with the results of finding that the wounds kept sweet and clean and healed readily.

This can hardly be called more than a preliminary report, but the results have been so satisfactory thus far that I feel justified in reporting them, and shall continue this method of treatment in these classes of cases in which at this writing it seems to me of value and scope yet to be fully determined. This remedy appeals to me as being especially applicable for use in diseased cavities, sinuses and fistulas, and whereever there is found broken down tissue — bony, lymphoid, muscular or cellular.

I believe that solutions of enzymol may be used much weaker than the 50% solution which is recommended, and in fact must be so used on mucous membrane to avoid undue irritation.

When using enzymol in mastoid cases and suppurating middle-ear cases, I find that these cases do better when the enzymol is used thoroughly and *injected* into the middle ear or through the mastoid wound, not merely dropped in.

Reports of Societies.

THE NEW YORK OBSTETRICAL SOCIETY.

STATED meeting, November 13, 1900, the president, DR. H. J. BOLDT, presiding.

DR. E. B. CRAGIN presented a patient upon whom operation had been performed for

FULL-TERM ECTOPIC GESTATION,

the child being alive, in perfect condition, and presented with the mother to the society. Mrs. K. W., age thirty-three years, a German, was admitted to the Sloane Maternity Hospital, October 16, 1900, with the following history: She had been married eight years, had two miscarriages, one at six, the other at four months, menstruation had been regular, and there was no history of endometritis or pelvic trouble of any kind. She had her last regular menstruation in January, 1900. In February she flowed for two weeks. In March she had a severe attack of abdominal pain which kept her in bed one week. After this she was well, except for alternating constipation and diarrhea during pregnancy. "Life" was felt in June. She had had pains in the back for two weeks before admission, and for two days before admission she had had several pains in the abdomen. On admission the pulse was 120; abdominal examination was negative on account of tympanites and rigidity of the abdominal walls.

Vaginal examination showed the vertex low down in the posterior cul-de-sac, almost on the perineum. High up behind the symphysis the finger could just reach the posterior lip of the cervix, but could not enter the cervical canal. As delivery *per vaginam* seemed impossible, it was determined to enter the abdomen. It was then found that the case was one