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**ALARMING HÆMORRHAGE following the OPENING of the
ANTRUM of HIGHMORE through the
ALVEOLAR PROCESS.**

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THE care with which the nose and its accessory cavities have been examined during the last decade has demonstrated the fact that empyema of the antrum of Highmore is by no means a rare disease.

In empyema of the maxillary sinus the thorough cleansing and disinfection of the cavity is the first indication. This may be effected in a number of ways, the method adopted by most rhinologists being the drilling of an opening through the alveolar process, as first practised by Cooper, and syringing and treating the cavity through this opening.

In most cases the drilling through the alveolar process is attended by but little hæmorrhage, which can be easily controlled. In twenty-eight cases, of which I have notes, in which I performed this operation, either in private practice or at the clinic of the Eye, Ear, Nose and Throat Hospital, I have had not more than slight hæmorrhage in every case but one, and this case is so unusual that I will describe it here.

In referring to this operation, as described in the various special works, as of Bosworth (1), Lennox Browne (2), Ingalls (3), Moritz Schmidt (4), Schech (5), McBride (6), Spencer Watson (7), Rosenthal (8), Zarniko (9), and others, absolutely no mention is made as to the possibility of hæmorrhage. Bryan, in "Burnett's System of Diseases of the Ear, Nose, and Throat," refers to the troublesome hæmorrhage sometimes following the Mikulicz method of opening the antrum through the inferior meatus ;

but no reference is made to any hæmorrhage following Cooper's method of opening the antrum through the alveolar process, nor can I find any mention of this complication in the comprehensive references in Semon's "Centralblatt für Laryngologie" (1885 to 1895). The rarity of this occurrence is therefore evident, and will give especial interest to the following case.

Miss M. S., aged thirty-three, consulted me for a "neuralgic pain" about the right eye, and a fœtid discharge from the right nostril. The pain and discharge had existed for over three years. The family history is good. Her general health has been excellent except during the last six months, when she has suffered from loss of appetite and occasional slight fevers, which she associates with the pain in the head. About eight years ago she had a severe epistaxis, but has had several teeth extracted without more than the usual hæmorrhage, and a cut finger heals promptly.

A rhinoscopic examination shows several polypi in the region of the middle turbinal, and plus in the middle meatus. Electric transillumination shows infra-orbital darkness, and a diagnosis of empyema of the right antrum of Highmore is confirmed by washing out the cavity through the ostium maxillare, and bringing away a quantity of fœtid secretion.

On Friday, February 9th, 1894, the antrum was drilled through the alveolar process, at the site of the first molar, which, with the adjoining teeth, had already been extracted for the "neuralgia." The operation was performed with a small Curtis trephine operated by an electro-motor. The opening into the cavity being made without difficulty. Local anæsthesia was induced by injecting ten minims of a three per cent. solution of cocaine into the gum.

There was such a profuse hæmorrhage that the cavity was rapidly washed out with a boric acid solution, and packed with iodoform gauze.

Saturday, February 10th. On removing the iodoform gauze packing there was such a free hæmorrhage that the opening in the alveolar process was quickly packed as far as the inner wall of the antrum. The hæmorrhage appeared to be arrested, but in about two minutes the blood began to flow from the right nostril, showing that the hæmorrhage had continued through the sinus. The gauze was at once removed, and the whole antral cavity packed firmly with the gauze as far as the external opening in the alveolus.

The patient was very weak from the loss of blood, and had to be placed in the horizontal position, and stimulants freely administered. There were two more attacks of weakness during the afternoon.

Monday, February 12th. The removal of the gauze was again followed by a severe hæmorrhage, which was controlled by packing as before. In spite of the rapidity with which the antrum was packed, there was considerable loss of blood, and the weakness, consequent upon the recurrent severe hæmorrhages, confined the patient to bed until the following Friday.

Friday, February 16th. Another hæmorrhage followed the removal of the gauze. An attempt was made to pass a galvano-cautery into the alveolar opening to cauterize the bleeding part, but the hæmorrhage was

so profuse that this was ineffectual, and the cavity had to be repacked with all possible dispatch.

Monday, February 19th. I examined the parts carefully, but made no attempt to remove the gauze, as the patient seemed very weak.

Friday, February 23rd. Although two weeks after the operation, the opening bled freely on removal of the packing. The hæmorrhage was controlled by filling the cavity with iodoform as before.

The persistency with which these alarming hæmorrhages occurred on each attempt to remove the gauze determined me to make an effort to close the alveolar opening, and continue the treatment of the antrum by some other method.

Saturday, February 24th. About one-third of the gauze was removed without bleeding.

Monday, February 26th. The remainder of the gauze was removed, and was followed by a hæmorrhage which necessitated the packing of the cavity.

Thursday, March 1st. The packing was removed with the same result.

Friday, March 2nd. About one-half of the gauze was removed without causing a hæmorrhage.

Saturday, March 3rd. The remainder of the packing was removed, and was followed by a hæmorrhage as free as on previous occasions. The drilled opening in the alveolar process was firmly packed through its whole length, but the antrum at once filled, and discharged the blood through the nostril. The gauze was removed, and the whole cavity was packed, which at once controlled the hæmorrhage. The patient was much prostrated from the loss of blood.

I was now becoming quite anxious over the case. The gauze, saturated with blood, could not be left in the antrum more than twenty-four to forty-eight hours without setting up symptoms of septic absorption, and each attempt to remove the gauze was followed by a serious hæmorrhage.

Monday, March 5th. One-third of the packing was removed. There was no hæmorrhage, but the patient reported that the nose had bled for fifteen minutes during the afternoon.

Tuesday, March 6th. Another third of the gauze was removed without loss of blood. The nose again bled for about five minutes during the evening.

Wednesday, March 7th. The remainder of the gauze was removed without hæmorrhage. Only a small piece of gauze was placed in the outer end of the alveolar opening to protect it from particles of food, etc. This the patient was directed to change occasionally.

Thursday, March 8th. There were several slight discharges of blood from the nose.

After this date there was no further hæmorrhage. The patient had been much prostrated by the repeated hæmorrhages, and was placed on a rich diet, especially of milk, with tonics and iron. A week later, as there had been no further signs of hæmorrhage, she was sent to the country, returning in three weeks much improved. The artificial opening in the alveolar process has apparently closed.

The treatment was then continued through the nostril. The polypi

were removed with but little hæmorrhage, and the antrum washed out through the ostium maxillare. This was kept up with increasing intervals for about four months, when the patient was discharged, as no more pus had been washed from the antrum for several weeks. A year later there had been no recurrence.

As there appears to have been no hæmophilic tendency in the patient, the severe hæmorrhage recurring on each attempt to remove the gauze for almost one month after the operation was certainly remarkable. That there was no tendency to hæmophilia was shown, not only by the previous and subsequent history, but also by the fact that the removal of the polypi and other intra-nasal operations were not followed by any unusual bleeding. A large blood-vessel in the alveolar process might explain the initial hæmorrhage, but scarcely the repeated recurrences. A hæmorrhage from this cause would probably also have been controlled by the firm packing which was made through the whole extent of the alveolar opening.

My only explanation is that there must have been an angiomatous condition of the mucous membrane of the antrum at the point where the trephine entered the sinus. This would explain why the bleeding continued through the sinus and nostril after the opening in the alveolar process had been firmly packed. The disturbance due to the removal of the packing would account for the recurrence of the hæmorrhage.

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ON ATYPICAL CASES.

IF a long series of cases be taken at random in any department of medical science, a certain number will fail to satisfy the requirements which would place them under the rubrics, or, in other words, in the diagnostic "pigeon-holes" at our disposal. In moments of clinical languor we are apt to classify them along with the types to which they most nearly approximate; at other times they are placed among the unknowable or "undiagnosed," and in any case are recognized as "atypical." The attitude of mind in which we ought to regard them