ASPERGILLOS OF THE MAXILLARY SINUS.*

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Curious cases, even though rarely met with, present a certain amount of interest, as one is always in the position of unexpectedly encountering a similarity which, for the moment, remains unrecognized. Such is the history of the following, which I have the honor of presenting to you this morning:

James B., a large man about fifty years, presented himself with vague symptoms referred to the left maxillary sinus. Some unilateral apparently non-fetid nasal discharge, a feeling of fullness over the left antrum, vague head pains, entirely atypical of sinusitis. No periods of congestion or depression and no post-nasal discharge. Some casomnia at times, but never marked.

Examination revealed a slightly congested, lateral nasal wall, otherwise normal. A needle puncture of the maxillary sinus was made and it was found considerable resistance was offered to the ingress of the normal saline solution. Being mindful of the fatalities reported by Gording¹ following needle puncture in which there almost invariably was difficulty in forcing the irrigating solution into the sinus, I proceeded with the utmost caution, watching the patient closely for the appearance of any untoward symptom. Despite the continuation of gradual pressure, nothing developed, nor did any liquid escape from the nose either anteriorly or through the choanae into the pharynx. As the resistance seemed to be lessening, another syringe-full was tried and almost immediately some fluid returned from the nostril on that side. It appeared slightly turbid, but no free pus was observed. After the injection of, at least, sixteen ounces there appeared in the washings, small white inspissated masses which resembled cottage cheese. It immediately occurred to us that we were dealing with a case of cheesy metamorphosis of a sinus empyema or a so-called verkäsung which, of course, is a condition where the purulent secretion has become sterile and begins to organize into a semi-solid mass. Continued lavage, which now was returning quite freely, brought fourth a considerable quantity of this cheesy material, some of which was set aside for pathologic investigation. Lavage was continued until the antrum was free, the in-

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jected fluid returning clear. The patient expressed himself as greatly relieved, saying his head felt lighter than it had for a long time.

He did not return for nearly a week, when further needle puncture and lavage were negative, the patient feeling quite well. He was to report should any of his old symptoms reappear, but as several months have now elapsed, we can consider the case as cured.

The pathologic examination by Dr. Case gave the following findings:

"The specimen was small, soft and possessed no characteristic appearance that might have suggested the diagnosis. It had been placed in formaldehyde solution so that a cultural study was, unfortunately, not possible. Following the usual routine, it was imbedded in paraffin, stained with hematoxylin and eosin and examined histologically..

As may be seen in the preparation under the microscope, it consists of a close mycelial network with an occasional conidiophore surmounted by a fan-like arrangement of conidiophores. The hyphae take a faint pink stain, but the fructifying bodies are yellowish in color, apparently resisting the penetration of the dye." Diagnosis, *aspergillus* probably of the species *fumigatus*."

"The conidiophores are rounded rods with a bulbous extremity, from which the conidiophores grow like numerous minute fingers. The germ *aspergillus* possesses a number of species, a few of which are pathogenic for warm, blooded animals. Among the non-pathogenic forms is the *aspergillus oryzae* which furnishes the widely known *takadiastase*.

"The nomenclature of the genus *aspergillus* is evidently not definitely fixed, as one soon discovers when examining the literature."

McFarlane² gives the following species as pathogenic: *Aspergillus malignum*, found in the external auditory canal of man. *Aspergillus nudulans*, occasionally infecting cattle. *Aspergillus fumigatus*, found in the external auditory canal and in other situations in man, and the cause of a fatal pneumomycosis of pigeons, a disease sometimes transmitted to man, one observer collecting 39 cases. *Aspergillus niger*. *Aspergillus flavus*. *Aspergillus subfuscus*.

While infection of the middle ear by the various forms of the *aspergillus* is comparatively common, an infection of the accessory sinuses is apparently quite rare, as but four authentic cases have hitherto been recorded. All of these occurred in women and the infection was the *aspergillus fumigatus*.

Dr. C. von Zarnico³ reported a case in a woman of 50 whose chief complaints were nasal obstruction associated with much discomfort,

an abundant secretion of a sickening odor and frontal headache with, at times, a feeling of obstruction in the left ear. Lavage of antrum brought forth a profuse fetid muco purulent secretion containing brownish-gray masses about the size of a pea which, together, formed a mass as large as a hazel nut. The infecting organism was the *aspergillus fumigatus*. Great improvement was noted immediately after the first irrigation and ultimate cure after the twenty-first. He was unable to find any report of a similar infection.

The length of time required to bring about a cure in Zarnico's case was probably due to the fact that an antral empyema co-existed with the *aspergillus* infection, which in my case did not obtain.

Dr. J. H. Mackenzie⁴ reports a similar case due to *aspergillus fumigatus*. This patient, a woman of 35, first noticed a swelling on the right side of the face, which was relieved temporarily by a discharge of pus from the nose. The infection was later located in the antrum of Highmore, which was opened, drained and irrigated at regular intervals. Two months later, portions of a membrane came away, which, when examined by Doctor Flexner, was found to consist of an outer layer of round cell infiltration, a middle one of necrotic material and an inner zone of a dense mycelial network.

In 1913, Douglas Harmer⁵ reported a case before the Royal Society of Medicine of London. The patient, a lady, contracted a severe cold while motoring in an open car and developed a persistent discharge of mucous from the right nostril, accompanied, at times, by a thick membranous, non-offensive cast of a brownish color from the back of the throat. He described it as resembling wet blotting paper. She had violent attacks of sneezing and her general condition was bad. Headache and neuralgic pains around the right eye were occasionally complained of and she suffered from insomnia. While her temperature and pulse were normal, she appeared to be toxic. The nasal mucosa was intensely edematous and the secretion very abundant.

The antrum was irrigated, no discharge appeared for a time until about a pint had been injected, when small lumps of brownish membrane began to appear in which a copious growth of the *aspergillus fumigatus* was found. Various lotions were used, but she received the most relief following the frequent administrations of sodium iodide. In discussing Dr. Tilley's paper eighteen months later, Dr. Harmer said that though relieved, the patient was not cured and he believed the ethmoid sinuses were also involved. He mentions finding but three cases in the literature, but gives no references.

Herbert Tilley^o also reported a case before the same Society, stating that he had met with five cases in all. The first in 1909 was reported in the *Lancet* of that year as an endothelioma myxomatodes, but which he now believes to be a case of aspergillosis. He gives no reference to any report of the other three cases.

In the last case, the symptoms were a persistent discharge of mucous and muco-pus; fits of violent sneezing with an expulsion of grayish-white viscous masses; headache, with neuralgic pains in and around the cheek and eye, so severe in his first case as to interfere materially with the patient's rest. He speaks of the intense edema of the nasal mucosa, with bulging of the wall of the antrum, suggesting cyst formation. A return of fluid after the needle puncture could not be obtained. His cases were operated upon by Caldwell-Luc method with no recurrence.

From the foregoing, it would appear that in my case, the infection was a recent one uncomplicated by any form of purulent process which would account for the rapid disappearance of the infection.

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