although there is some doubt: first of all, on account of the length of time which elapsed (eleven and five days respectively) between the ingestion of the drug and the discovery of the hematoporphyrin in the urine; and, secondly, the inability to collect and carefully examine the urine after the trional had been taken.

Whether the disease of the nervous system, and the marked gastro-intestinal disturbance in the case had any bearing upon the cause of the hematoporphyrinuria is not known, although such a possibility exists.

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COMPLETE CONGENITAL OCCLUSION OF THE POSTERIOR NARES: REPORT OF A CASE.¹

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THIS condition is one of such rarity, judging from the literature of the subject, that it might at first seem of little practical interest to the physician; and yet there is no doubt that infants may die from the want of knowledge on the part of the family doctor of the possibility of the existence of such an abnormality. Apart, however, from any practical value which the report of such a case may have, it is certainly interesting in showing how an individual may grow up and live for years in comparative health, to all intents and purposes, without a nose, the respiratory function of that organ devolving entirely upon the mouth.

In a very thorough paper published in 1886, Hubbell gives a *résumé* of all the cases of congenital occlusion of the nostrils, unilateral, bilateral and partial, which had been reported up to that time, making seventeen in all. Of these, occlusion was complete in both nostrils in eight cases, complete in the right nostril in four, left in three. It was incomplete in both nostrils in one case, and in the left in one. The occlusion was bony in twelve cases, membranous in five.

¹ Read before the Boston Society for Medical Improvement, November 15, 1897.

Since 1886 I can find but three cases of complete bilateral occlusion reported. A. Schwendt, of Basle, published a monograph on this subject in 1890. I have been unable to obtain the original article, and the references to which I had access did not mention the number of his cases in which the occlusion was complete. Cases of unilateral occlusion by a bony or membranous septum are more common. Cases also occur in which the occluding septum is only partial in one or both nostrils. But as these two classes offer no important special conditions for consideration, I shall refer only to those cases in which the occlusion was complete in both nostrils, which seem to form a distinct group because of the more serious symptoms which they present.

The following are brief abstracts of reported cases in which the nasal occlusion was complete. Those before 1886 were taken from Hubbell's paper, although the original articles were also consulted in almost every case.

The first case which appears in literature is that of Emmert, which was seen by him in 1851. The patient was a boy, seven years of age, who had been unable to breathe through his nose from birth. He was nourished with difficulty in infancy. Both choanæ were entirely occluded by a bony wall. Mucus and tears constantly discharged from the nose. The sense of smell was absent. The obstruction was penetrated with a special trochar and the openings enlarged with a catheter. Tubes were worn in the nose at times for six months. It was not ascertained in what manner or from what bones the partition arose. The father had syphilis of the pharynx. As nothing is said of the hearing, it is presumed that both it and the condition of the ears were fairly normal.

Luschka's case, reported in 1859, was a female infant who died shortly after birth. The posterior nares were occluded by a bony plate extending upwards and backwards from the horizontal plate of the palate bone to the lower surface of the sphenoid.

Bitôt discovered in a fetus of seven months the nasal foræ imperforate posteriorly, the obstruction being due to the presence of two triangular bones of more or less regular shape, articulating above with the sphenoid, below with the os quadratum or the horizontal plate of the palate bone. Exteriorly their borders corresponded with those of the internal wings of the pterygoid apophysis, while internally they infringed one upon the other and formed a median fissure.

J. Solis-Cohen's case was an infant which had difficulty in sucking and breathing. This was relieved by boring through the occluding structures with a knife and steel probe.

Ronaldson's case, an infant with complete membranous obstruction of both posterior nares and no other abnormality, died soon after birth.

Wilkerson reports the case of a child six years old, who was hand-fed as an infant, being unable to nurse. The senses of smell and taste were very deficient. Both nasal cavities were obstructed at their posterior ends. The obstruction was partially removed by a (special) revolving trochar and canula. The bony plates appeared to be about a quarter of an inch thick. Tubes were worn for six days, then bougies were passed. Nasal respiration was established. No deafness was noted.

Schrötter's case (1884) resembles mine in many ways. The patient was a girl of nineteen years, strong

and well developed, but with both nostrils completely occluded and an adenoid facies. Secretion from the nose was free when lacrymation was increased. The mouth and throat were dry most of the time. There were occasional headaches. The hearing was below normal, taste defective and smell absent. Speech was a little difficult and nasal. The membranæ tympani were deeply drawn in. The nasal forasæ appeared normal in size from in front. The closing diaphragms were a little in front of the posterior orifice of the nasal forasæ. They were bony, thickest near borders, and their direction was upwards and backwards. They were opened by galvano-cautery and chisel. After operation the breathing was free, the speech and facial expression greatly improved and the sense of smell imperfectly regained.

Hubbell's patient was eighteen years old when he first saw him. He had never breathed through his nose and, as an infant, could not suckle. He was strong and well developed. There was an entire absence of nasal quality in the voice. The sense of smell was absent, but taste was good. Swallowing was more difficult than normal. The discharge of mucus from the nose was free and a source of much annoyance. Hearing was acute, and the membranæ tympani were normal. The nose was quite large, the cavities anteriorly of normal shape and size, but the mucous membrane more or less swollen and congested. The posterior border of the septum was prominent. The obstruction was at the depth of one and a half inches. It was a thin bony wall covered on both sides by mucous membrane. It was punctured without much force by giving a trochar a drilling motion. The openings were enlarged under chloroform. Sounds were regularly introduced afterwards and tubes were worn for a time.

Eulenstein's patient, aged fifty-six, had both nostrils occluded by an osseous membrane in the posterior nares. These were perforated with a drill and the openings enlarged with a nasal saw. There was no diminution of hearing in this case. No history of this case is given.

Watson's case was probably one of complete congenital bony occlusion of both nostrils. The patient was a farmer, aged twenty, who had had the left nostril opened two years before by means of a galvano-cautery. Watson cut through the bony wall in the right side with a gouge-chisel. The report of the case is very brief and incomplete.

Suchanek saw his patient for the first time when he was eleven years old. The boy's color and development were good. There was complete anosmia, although taste seemed well developed and appetite good. The hearing was unimpaired. The patient had no headaches and rarely complained of dryness in mouth and throat. The play of the nostrils was absent. The skull showed no abnormality and the intelligence was good. Anterior rhinoscopy was possible only after the removal of a mass of grayish mucus. In the posterior nares the septum was recognizable as a projecting ridge between the occluding membranes. The latter were also visible through the anterior nares. The membranes were pierced by a trochar and tubes were worn for three months. The sense of smell was not recovered.

My patient, L. L., a girl of eighteen, upholsterer, came to the Out-patient Department of the Massachusetts General Hospital last June, on account of com-

plete inability to breathe through the nose. She was born in Nova Scotia, as were also her parents. She has three brothers, all living. The mother died of consumption when the patient was seven years old. The father is living and well. All the patient's relatives are tall, but she is barely five feet in height. The condition of which she complains has existed since birth, but its cause was unrecognized. It was discovered at once that the infant could not nurse, so that feeding with a spoon had to be resorted to. Very early in life it was thought she suffered from headache or earache, and at the age of four months without the concurrence of any illness her ears began to run. Otherwise she was a healthy child, having had only measles and whooping-cough, both in a mild form. When the patient went to school she began to have fainting attacks and dull headaches, which have continued with little diminution up to the present time. In studying, she found it difficult to concentrate her mind, so that, as she was ambitious, she was obliged to devote nearly twice as much time as other children to her books. She is short and slight, with the typical "adenoid face," that is, the face of a mouth-breather — drooping eyelids, narrow, long face, pinched nose and slightly open mouth. The hard palate is very narrow and high, the upper teeth badly crowded. There appears to be no abnormality about the chest, which seems fairly well developed for a girl of her size. The chest-expansion appears about normal. She is much troubled with dryness in the mouth and throat, especially in the morning. During any illness she has often experienced considerable difficulty in breathing. The sense of smell is entirely wanting, although taste is well developed. The patient has a good appetite, enjoys her food, and has her favorite dishes as well as those she does not like; but it was evident on experiment that she could make none of the finer distinctions of taste for which the olfactory organs are necessary. Some of her distinctions of taste are interesting: A wintergreen lozenge had a "sweet and stingy" taste. A sassafras lozenge was simply "sweet." Ginger gave a burning sensation. Lozenges of a cinnamon or clove flavor were the same, but both were distinguished from ginger. The patient insists that she can tell the difference between meats; for instance, she likes veal but does not care for beef. She also says she is very quick at distinguishing bad butter from good.

On examination both nostrils were seen to be more or less filled with a rather thick grayish mucus, which at times causes the patient considerable annoyance, especially when she has a cold. On getting rid of this mucus a good view was obtained of the anterior nares. The nasal mucous membrane was pale, the septum deviated to the left, presenting a ridge in the left nostril which was quite obstructive.² The right lower turbinate was enlarged. The occluding wall was not visible on account of the large turbinate on the right and the ridge on the left. But a probe introduced into each nostril met the obstruction about five centimetres from the anterior nares. It was apparently covered by smooth mucous membrane. The soft palate lay so close to the posterior pharyngeal wall that posterior rhinoscopy was not possible. The forefinger introduced into the posterior nares discovered a firm wall

² The patient fell and injured her nose when she was six years old. This may have been the origin of the septal deformity or what seems equally probable the deformity may be developmental, the result of the growth of the septum while the nasal chambers remained undeveloped.

in each choana, covered with mucous membrane, forming a continuous surface with the vault and sides of the pharynx, meeting the septum a little in front of its posterior border, so that the latter stood out under the finger as a smooth ridge. The naso-pharynx was small and undeveloped:

On operating, the occluding walls were found to consist of bone, varying in thickness from two to nine millimetres, being apparently thickest near the septum and nasal floor. After the application of a ten-per-cent. solution of cocaine in the right nostril, I drilled through the bony wall with a trephine (five millimetres in diameter) run by an electric motor. The progress was a slow one on account of the extreme hardness of the bone in some places. I enlarged the opening from time to time, so that now it is eleven millimetres in width by thirteen millimetres in height. In the left nostril I first removed the ridge with a trephine, and then drilled through the partition in a similar manner. The bony wall appeared in general rather thicker than that

may arise from both. Whatever its origin, the symptoms resulting from this complete nasal occlusion are distressing enough. As Dr. Knight says, such an occlusion is "almost of necessity fatal to the nursing infant."

Of the cases which I have been able to collect from literature, one was a seven months' fetus, two were infants who died soon after birth, with apparently no other ailment, and one was operated on in infancy. Many infants must have died from this condition in whom it was never recognized. And when one considers the serious handicap that such a condition must be to the infant in its struggle for existence I think the greatest wonder must be that any such cases have lived to grow up. For there is not only the inability to suckle and the consequent difficulty in obtaining sufficient food, but also the exposure of the bronchial tubes and delicate air cells of the lungs to the constant irritation of air insufficiently warmed, moistened and filtered. The absence of the olfactory sense is a nat-

Longitudinal Section of a Core of Bone removed by trephine through the thickest portion of the obstructing wall in the right nostril, showing the density of the bone. (Dimensions of section, 10 mm. $\times$ 2 mm.)

in the right nostril. The opening in the left nostril is somewhat smaller than in the right. It will not be possible to make this much larger without first straightening the deviated septum. I shall do this operation later if the nasal respiration does not seem sufficiently free.

No trace of the sense of smell has developed. There was only a slight impairment of hearing before the operation, and there has been no perceptible change since. Dr. H. L. Morse kindly examined the ears and tested the hearing. He reports a large dry perforation of the lower posterior portion of each drum. Hearing: right ear, very low whisper 16 ft., watch 42 in. ($\frac{1}{2}$) left ear, very low whisper 16 ft., watch 37 in. ($\frac{3}{8}$).

On account of the headaches not having ceased (although much better) since nasal respiration has become established, I thought an examination of the eyes important. Dr. F. E. Draper was kind enough to make the examination for me. He reports vision, right eye = $\frac{1}{2}$ with +.50 D. cyl., ax. 75° = $\frac{1}{2}$; the left eye the same. He says, "You will see that the amount of astigmatism is very small, but I believe it is sufficient to account for the headaches."

The patient has had no attack of fainting since the operation. I have not found bougies or tubes necessary in after-treatment as the openings which I have made have, so far, shown no tendency to become closed.

The etiology of these cases is obscure. Dr. C. H. Knight says they "would seem to be an overgrowth of bone from hypernutrition." As to the origin of the bony plate, Luschka is of the opinion that it is a continuation of the free border of the horizontal plate of the palate bone, while Kundrat thinks it is an extension of the vertical plate, and Hubbell suggests that it

is a natural result of this condition. In Schrötter's case it was imperfectly restored after operation, but this seems to be an exception to the rule. The accumulation of the nasal secretion is usually spoken of as an annoying symptom. Dryness of the mouth and throat is at times very trying. The facies is the characteristic one of constant nasal obstruction. Articulation is, as a rule, difficult, and the voice has that dead quality (absence of resonance) which accompanies nasal obstruction from other causes.

In Schrötter's case the speech and facial expression is said to have greatly improved after operation. It is not stated how gradual this improvement was. In my patient there has been no appreciable improvement in either respect. If such an improvement does occur, it must be very gradual, as a result of changes which may take place, such as increase in size of the naso-pharynx, broadening of the hard palate, etc. The patient may be too old for such changes to take place. I would say, however, that the soft palate already hangs far enough away from the posterior pharyngeal wall to allow a good posterior rhinoscopic examination, and it is possible the dentist can do something towards widening the upper jaw. Headache is a common symptom. The eyes are usually unaffected. Hearing seems, as a rule, to be uninfluenced by this condition, Schrötter's and my case being apparently the only exceptions. Knowing the effect on the drum membranes of repeated swallowing with the nose closed, one would, I think, expect some impairment in hearing to be the rule instead of the exception.

Before closing, I wish to express my thanks to Dr. J. L. Goodale for his beautiful preparation of the section of bone from which the drawing was taken, as

well as to Drs. Morse and Draper for their special examinations.

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PYONEPHROSIS.

A CLINICAL STUDY, WITH DETAILED REPORT OF A CASE OF EXTREME TYPE.

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THE following case is one of extreme type, and is reported in full because it formed the basis of a study that shows of what value, as well as limit, the modern researches of Kelly and others may have in the practical treatment of the severer types of pyonephrosis.

Mrs. Wm. H. H., age thirty-four years, was married in July, 1884, at which time she was in excellent health. Thirteen months after her marriage she was delivered of a six months' dead fetus. Immediately subsequent to this event she began to complain of symptoms that led to a diagnosis of disease of bladder, and backward displacement of the uterus. The bladder trouble becoming intractable, she went to the Women's Hospital in New York in 1887, and had a buttonhole operation performed by Dr. Emmett. She remained at the hospital five months. Before this operation there was painful micturition, pyuria and vesical tenesmus, with resulting insomnia and debility. Little improvement immediately followed the operation, but in about a year she began to pick up both in health and spirits.

In February, 1889, she re-entered the hospital, and had the opening in her bladder repaired. Shortly afterwards she was operated on for lacerated cervix and perineum. She remained in the hospital until the last of June, 1889, during which time she gained greatly, and returned home in a fair condition of health.

Conception occurred soon after her arrival home and January 15, 1890, she gave premature birth to a seven months' child, which survived for a few weeks. During her delivery the cervix was again lacerated and evidently there followed a condition of sub-involution, with backward displacement of the uterus.

In April, 1894, I was called to see her for the first time, by her attending physician, Dr. W. J. Clarke, of Milford, and repaired the cervix, replacing the uterus at the same time. She made a good recovery from the operation, but the uterus dropped back into its former position, and gave rise to such disturbance that treatment became necessary, and in June she entered a private hospital, where I performed an operation for the ventro-suspension of the uterus. Owing to her previous history of cystitis, great care was exercised and every precaution taken before,

during and subsequently to the operation to avoid irritating the bladder. An easy recovery followed the operation. During her stay in the hospital she had an attack of sharp pain, followed by soreness along the track of the left ureter; and a diagnosis of ureteral trouble, either passage of a calculus, some foreign body, or ureteritis, was made. She claimed, before entering the hospital having had two similar attacks. The attack readily subsided, and, on her return home, she was in a comfortable condition except perhaps for attacks of dysmenorrhea.

She had no further attack of colic until November, 1894, when severe pain occurred along the right ureter, and confined her to her bed for several days. These attacks of pain now became more frequent, appearing about every five weeks, until September 24, 1895, when she took to her bed and never left it until she entered my private hospital, July 28, 1896.

During the early period of her confinement, she had periodical attacks of pain, followed by the discharge of great quantities of pus in the urine and subsequent temporary improvement in health and comfort. Before the discharge of pus a large swelling occurred in the region of the right kidney, which subsided simultaneously with the evacuation of pus. The urine became strong smelling, alkaline, and contained a thick deposit of mucus. Micturition was painful; the bladder was irritable and at times there was some pain in the region of the left kidney. During her long period in bed the bladder was washed out daily with a solution of boric acid and other bland antiseptics and, by this means, the distressing symptoms were kept under control. Her appetite rarely suffered during this long period of disability, and she insisted upon a liberal diet of meat and vegetables, at the same time resenting every effort in the most strenuous manner to place her upon a diet of liquid food. Emaciation was progressive and extreme. From time to time uremic symptoms set in and threatened dissolution, but a special activity of the bowels was efficient to avert the fatal termination.

I lost track of the patient for several months after she took to bed, and it was late in the spring of 1896 that I was again called to see her. At this time the diagnosis was obvious and the question of treatment the main point for decision. Her condition was so feeble that she could barely move in bed, and only with the assistance of others. This fact precluded any severe operation; so I determined, if possible, to catheterize the diseased kidney, and, by this means, to administer local medication. During the months of May and June I made three attempts at the home of the patient in Hopedale, but could get neither catheter nor bougie beyond a constriction situated in the ureter, about one inch from the pelvis of the kidney. In July she was brought to the hospital on a mattress, where I had greater facilities for studying the case and its treatment. For a week after entering the hospital she was in a dangerous condition, and only treatment of the blandest nature could be tolerated. Pain in the side, nausea and vomiting, headache, insomnia and confined bowels were prominent among her symptoms. Her temperature was elevated, and her pulse was rapid and irregular. In other words, the fever of septic absorption was present. At the end of a week she quieted down somewhat, and I again practised the introduction of the ureteral catheter at intervals of every third day. However, I could not get it beyond