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HÆMATOMA OF THE NOSE.

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Judging by the slight notice which hæmatoma of the nasal septum receives in the various surgical manuals and in special volumes, it might, in the opinion of many, be classed as a rare affection. But, on closer consideration, it will be observed that as the nose is so frequently exposed to hard blows, and as the affection is nearly always traumatic in origin, it would seem likely to be of more frequent occurrence. Comparatively few cases, however, are found in literature.

Cloquet (*Journ. hebdom. de Med.*, No. 91, T. vii., 1830) gives the first description of hæmatoma nasi; later it is mentioned by Velpeau (*Gaz. des Hôpitaux*, 1860), Mackenzie, Casabianca (*Thèse de la Faculté de Paris*, 1872), Luc (*Bulletin de la Société de Chir.*, 1875), etc.

Hæmatoma septi nasi occurs as the result of trauma directed to the dorsum nasi, accompanied by a tearing of the soft tissue, and bleeding between the cartilage quadrangularis and the perichondrium; the more profuse the bleeding the greater is the separation between the mucous membrane and the perichondrium. This area is distended with blood, and a broad-based, red, fluctuating tumor is formed, sometimes completely occluding the nasal canal; as the hæmorrhage frequently occurs simultaneously on both sides of the cartilaginous

septum, nasal respiration may be entirely shut off. In addition, the obstruction to normal respiration, thus formed, and the increased breadth of the septum, will cause the nose, in its outer form, to become broad, thick and swollen. If nasal respiration has been impeded from the first, the patient will present himself complaining of polypi, for very frequently the hæmatoma will develop completely without reaction.

Reabsorption of the hæmatoma is noted in Cases 1, 2, 3, 4, 8, 9, 11 and 13 of the series herewith reported. This reabsorption, without pain, is, apparently, the reason that this affection is so rare in practice, for as long as the nasal respiration is free, the patient will feel but little discomfort. The cure takes place either by absorption, or, if the tissues have become purulent, by spontaneous rupture, with the evacuation of a more or less purulent fluid.

Only one case of spontaneous absorption is found in the literature of the subject. Ball (Ref. by Fischenich, *Arch. für Laryng. u. Rhin.*, Vol. 2, 1894; *British Med. Journ.*, 1890) cites the case of a boy, seven years old, with a bilateral hæmatoma, which was reduced by rest and steam inhalation. However, the citation of only one case is no evidence that spontaneous absorption is a rarity. The objection may be raised that the absorption power of the mucous membrane is considerably retarded by the deposition of fibrin on the surfaces of the hæmatoma; this may, indeed, retard the absorption process, but not destroy this power, as the mucous membrane is richly supplied with blood-vessels which function as absorption agents.

The important role which trauma plays in the etiology of hæmatoma has already been remarked; the location and direction of the blow upon the nose should also be taken into consideration. If the lateral areas of the nose are injured, the elastic septal cartilage will serve as a rebounding cushion; if the blow is received on the dorsum of the nose, the result is different, owing to the structure of this portion of the nose. Zukerkandl (*Normale und Pathologische Anatomie der Nasenhöhle*, 1892, pp. 20 to 41) states that the articulation between the lamina perpendicularis ethmoid with the os nasi varies in extent. In 49 per cent. it extends to the middle of the dorsum; in 38 per cent. it advances further downwards; in 3 per cent. there is no connection between the lamina and the nasal bones, so that it is supported only by the spina nasalis. These anatomical variations are of importance in the consideration of injuries to the osseous part of the dorsum nasalis, for the further downward articulation reaches the more protection will be afforded the cartilago quadrangularis. Besides, Zukerkandl has shown that even slight lesions of the nasal bones may

occasion bending, luxation or fracture of the cartilago quadrangularis; the thought then naturally suggests itself: Has the hæmatoma, which has all the etiological factors, arisen as a consequence of these alterations?

The force of the blow may extend over the entire lamina quadrangularis, and cause forcible contact with the lateral nasal walls, thus causing a tear of the web on the convex surface of the lamina quadrangularis, and the formation of a one-sided hæmatoma. It may not be thought possible that such a slight bending of the septum can be followed by a hemorrhage, but as the cartilaginous septum is somewhat pliable and elastic, even a strong bending just after the trauma will be partly straightened, thus making it difficult to decide whether the existing slight curvature is normal or pathological.

Strazza (*Ann. des mal. de l'Oreille*, etc., 1888) cites the case of a boy, 4 years of age, who received a blow on the nose; immediately following the injury a slight bleeding ensued; not until a fortnight later was the left nostril filled with a red, distended tumor; the passage was completely free on the right side; following incision, a serous, somewhat red fluid exuded.

In Fischenich's case, previously cited, a man of 28 years received a blow on the nose; the next day the left nostril was quite filled up, and after four weeks the right nostril also was filled up. By incision a serous, reddish fluid was evacuated; the septum was perforated in its anterior third; after eight days the perforation was closed, and patient discharged cured. This was a bilateral hæmatoma, but still primarily only one-sided; probably the pressure of the fluid on the denuded cartilage caused the perforation.

Whenever a perforation of the cartilaginous septum occurs in this class of cases it is always found in the anterior third; here the cartilage is very thin, and as it is readily bereft of its source of nutrition (mucous membrane), the power of resistance in this area is very slight.

Case 1 may also serve as an illustration of the development of a one-sided hæmatoma, the result of trauma.

Hæmatoma naris is, as a rule, bilateral. Hyrtl (*Topograph. Atlas*, Vienna, 1860) states that a fracture of the cart. quadr. has never been seen, but since Zukerkandl has been engaged in the researches of this subject, scarcely a week passes without his having an opportunity for observing at least one case.

M. Kaeppe (*De Hæmatom Cartil. Nasi.*, Halis, 1839; ref. by Zukerkandl) was the first to diagnose fracture with extravasation of blood coagula. At the same time Bockdalek observed a double fracture, accompanying fracture of the anterior part of the os nasi. We

are justified in the conclusion, based on Zukerkandl's observations, that the bilateral hæmatoma following such fracture is more frequent than is usually supposed; indeed, the fracture can involve any part of the cartilaginous septum; the longitudinal fracture is the most common form. The fracture line extends antero-posteriorly, so that an upper and lower fragment is formed; in transverse fracture the septum is divided into anterior and posterior fragments. If no displacement follows such fracture, it may even, with most careful inspection, and probing be easily overlooked; this is applicable to examinations made immediately after the injury; in three weeks after the injury the most careful investigation will rarely give us any information. This is probably the reason that more recent literature furnishes us with only two well-established cases. One by Ricci, (*Ann. des Mal. de l'Oreille*, etc., 1891) that of a man 28 years old, received a blow on nose; short time after both nostrils became impermeable; lancinating pain in septum; headache and fever; accompanying these symptoms a large swelling of the nose and adjacent parts developed; not until the evacuation of a large quantity of pus was a fracture of the cartilag. quadrang. determined.

A similar case is reported by Pean (*Revue Medicale Francaise*, 1896; ref. by Fishenich).

The third form of trauma, involving the septum, is the one followed by luxation; this always occurs between the vomer and the cartilaginous septum. the blow usually forces the cart. septum out of its plane; sometimes it becomes loosened at its upper attachment and overrides the vomer; occasionally the cart. sept. is pressed to the outer wall of the cavum nasi, thus completely blocking the passage. In these luxations a depression of the nose will be quickly formed, as the cartilaginous part of the dorsum nasi will partially collapse.

There is some difference of opinion as to the possibility of dislocation and fracture existing at the same time. Zukerkandl states that they almost always accompany each other; Daniel Moliere, on the contrary, in his series of experiments on cadavers, has shown (*Ann. des Mal. de l'Oreille*, etc., 1890; ref. by Gougenheim) that as a result of a slight trauma of the dorsum nasi the displacement of the cartilage is readjusted, and he has never observed a fracture concurrently. These results have been further verified by Chevallet in his thesis (*Traitement des Fractures du Nez par l'Apperiel Platre*, Lyons, 1889).

Gougenheim reports two cases, where luxation was suspected, but an absolute diagnosis was not made either in these, or any other reported cases. In the one case reported, a 3-year-old child had a fall; a short time after, a depression of the cartilaginous portion of the

dorsum nasi was noted, and at the same time a red, tense tumor developed on either side of the anterior area of the septum; this was incised, and a quantity of pus evacuated; neither perforation nor fracture could be found. In the other case, the etiology was indefinite; Gougenheim believes it to have been traumatic; here also the depression of the dorsum nasi was noted before the bilateral hæmatoma was opened; the septum appeared smooth, and no fracture could be found.

We have now demonstrated how trauma affects the septum, and the hæmatoma is produced, but that the hæmatoma can occur spontaneously, like the othæmatoma, there is no doubt, as the same conditions are present here as well as in the external ear.

Two such cases are reported by Mackenzie (*Discusses of the Throat and Nose*, Vol. I., p. 438); one by Luc (*Bull. de la Societe de Chir.*, 1895), and one by Péan (*Nélaton-Pathologie Chirurgicale*, Vol. 3, p. 740).

The contents of the hæmatoma may vary; most frequently a supuration will follow shortly after the tumor develops, so that when the case is presented for treatment a more or less developed abscess may be found. This may mislead us in the diagnosis, but the history of the case and the traumatic etiology confirms these conclusions of hæmatoma.

In all the cases collected the fluid evacuated was either clear pus, spontaneously discharged, as in cases 3 and 12, or exuded after incision; or sero-pus, as in cases 7 and 9.

The healing of the hæmatoma by reabsorption has already been referred to; another issue in these conditions is the formation of cysts; the extravasated, blood-colored contents gradually assumes a distinctly serous character. Strazza's case would more nearly resemble this form, rather than that of perichondritis, as, two weeks following the trauma, there was an evacuation of serous, lightly-reddish fluid.

Hæmatoma is, as a rule, bilateral, symmetrically placed on either side of the anterior area of the septum; as the cartilage is very thin in this area, and the mucous membrane loose and delicate, the resistance offered to the pressure of the tumor is slight, and a perforation of the septum at this point is easily produced.

Jurasz (*Die Krankheiten der Oberen Luftwege*, 1891) is of the opinion that this necrosis occurs very quickly; that several hours after the trauma suffice; but of his own six cases there are two where respectively four days and six weeks have passed without any perforation having arisen.

In the following series of cases reported, incision was made in

eight, and only one case (No. 9) was found with perforation; in all of these cases, bilateral, symmetrically-situated hæmatomae occurred. The best opportunities were here presented for perforation to occur.

Following perforation, the two tumors gradually coalesce, and we should be able to make the diagnosis of perforation before the incision.

Mackenzie asserts that a perforation formed as the result of hæmatoma will be permanent; yet this assertion he endeavors to prove by only one case (M. Thorner, Hæmatoma of the Septum narium, *Medical News*, 1889).

In Jurasz's four cases and in Fishenich's case, the perforations were closed in the course of three weeks. The perforation is said to occasionally give rise to a deformity of the nose. In case 7 note the collapse of the cartilaginous septum nasi. Jurasz cites the following case: Male, æt. 23 years, received a blow on the nose; incision of the hæmatoma was made five weeks later; a considerable necrosis of the cartilaginous septum and collapse of the dorsum nasi was found; ten days later the perforation had healed, the septum appeared completely normal, excepting some slight curvature.

Zaufal (*Revue Mensuelle de laryng.*, etc., 1893) also cites a similar case of perforation and accompanying collapse of dorsum nasi, followed by healing of perforation and restoration of the parts to normal shape.

It is not indicated, therefore, that every perforation must necessarily be followed by deformity; it depends, to some extent, on the size of the perforation. If the perforation is surrounded by a ring of cartilage, there will naturally be no collapse of the adjacent parts; occasionally we find perforations of the cartilaginous septum, the result of syphilis, tuberculosis, abscess, etc., where the outer form of the nose is perfectly preserved. If, however, the perforation is large, and the ring of cartilage incomplete superiorly or inferiorly, a collapse and deformity of the nasal bridge will easily occur.

The diagnosis may offer some difficulties; but if the history of the case is good; if there has been a trauma, followed by a more or less profuse hæmorrhage; if, later, the patient notices that the nose grows broader, and the nasal respiration eventually is shut off, this series of symptoms points to hæmatoma. The development of the broad-based, red, fluctuating tumor, located on either side of the cartilaginous septum, and filling the apertura nasium, is often free of pain. If there is still some doubt as to the nature of the tumor—whether abscess, hæmatoma, or cyst—an exploratory puncture will decide. This test puncture, however, is only serviceable in the early stages of the tumor development, for later a differential diagnosis is, so to say, impossible, as the

contents of the hæmatoma may easily change to a purulent or, in rare cases, to a serous character. The treatment consists in immediately opening the hæmatoma with a large linear incision to evacuate the contents, and avoid necrosis and perforation. If it is a bilateral hæmatoma, both sides should be incised. Sometimes a simple evacuation is sufficient; but if an abscess has formed, a thorough irrigation, with antiseptic solution and tamponnage of iodoform gauze, is urged; only very rarely are we forced to the radical measure, as recommended by Schäffer (*Therapeut Monatschr.*, 1890), of excising an elliptical piece of the mucous membrane.

I take the liberty of adding the following cases to the literature of this subject:

CASE 1. (*The Polyklinik*, 1891).—Thorwald R., æt. 27 years, received blow on nose; followed by severe hæmorrhage; several recurrences of bleeding; outer appearance of nose broad and sore; left side of cartilaginous septum swollen and fluctuating; mucous membrane dry and scaly; left naris partially occluded.

CASE 2. (*The Polyklinik*, 1891).—Richard N., æt. 7 years, received blow on nose; complained of difficulty of nasal respiration; both nostrils filled with dark-red, tense, broad-based tumors, extending to the apertura narium. Incision made; pus evacuated, tamponnage with iodoform gauze.

CASE 3. (*The Polyklinik*, 1891).—Hans H., æt. 4 years, received blow on the nose; 8 days later complained of difficulty in nasal respiration; septum swollen; right naris filled with pus; this being cleared, the posterior area of the cartilaginous septum was found much infiltrated, and pus oozing from a single point. Warm douche.

CASE 4. (*The Polyklinik*, 1891).—Ludwig S., æt. 64 years, fell and struck his nose. In a fortnight redness and swelling of the nose, with difficulty in nasal respiration, was noted; septum much swollen in breadth; two broad-based, red, tense and fluctuating tumors, located on either side, and projecting from the cartilago quadrangularis and filling both nostrils. There was not only swelling of the nose, but also œdema of the cheek and eyelids. Incision, with evacuation of large quantity of pus. The fourth day after the incision, the pus had all been discharged; soreness and swelling had disappeared.

CASE 5. (*The Polyklinik*, 1892).—Carl F., æt. 18 years, received trauma on the nose; two days later the nose swelled up; occasional nasal hæmorrhage; there was febrile reaction, with sweating, temperature and quick pulse; nose red and intensely swollen; nasal respiration completely obstructed; the anterior area of the cart. septum was the seat of two symmetrical, hard, tense, and red tumors; incision

with evacuation of pus; after the lapse of one week the infiltration of the septum had almost passed away.

CASE 6. (*The Polyklinik*, 1892).—Meta H., æt. 26 years, received blow on nose; eight days later had several prolonged chills; nasal respiration was obstructed; on both sides of cartilaginous septum broad-based, red, tense, fluctuating tumors were seen; incision and evacuation of much pus from both sides.

CASE 7. (*The Polyklinik*).—Carl V., æt. 14 years, fell and struck his nose; nasal respiration almost abolished; intense pain, and several sleepless nights; patient had fever, and was confined to bed; nose almost closed by soft, elastic, symmetrical tumors, attached to cart. septum, and covered with natural mucous membrane; interior area of nose increased in breadth; otherwise no deformity observed; incision, with escape of a partly serous, partly purulent fluid; probing reveals presence of a perforation of the septum; tampon by iodoform gauze; 9 days later the swelling had disappeared; saddle-nose deformity seems probable.

CASE 8. (*Dr. Schmiegelow's Private Clinic*, 1894).—Miss H. V., 18 years; while riding, was struck by a thick branch across the nose; the blow was severe and painful; no hæmorrhage; during several succeeding days, nasal respiration was clear; nose soon filled up completely; tension over nasal dorsum; nasal intonation while speaking; at juncture of cartilaginous with bony septum, an infiltration and swelling was seen and felt; tender on pressure; nasal respiration at this stage was abolished; no indication of fracture at the root of the nose; later the nose was filled by broad-based, symmetric tumors, covered by dark-red, swollen mucous membrane; tense, elastic fluctuation was noted; both tumors were incised, and considerable thick pus was evacuated; the cartilaginous septum was denuded on both sides; the abscess cavities were thoroughly tamponed with iodoform gauze, renewed daily; three weeks after the abscesses had been incised septum was normal, and no nasal deformity.

CASE 9. (*The Kommune Hospital*, 1887).— —, male, æt. 19 years, was struck a blow on the nose by a clenched fist; immediately followed by severe epistaxis; three days later patient noticed that both nostrils were filled up, and the nose became broader; on each side of septum, protruding from the apertura nasi, were tumors the size of a nut, irregular in surface, reddish, and somewhat elastic to the touch; on incision, a rather thick tumor wall was encountered, and sero-purulent contents on each side of the septum; several days after incision and evacuation hæmatoma had again filled; extensive galvanocautery puncture was made, resulting in a cure.

CASE 10. (*The Kommune Hospital*, 1889).—Jens N., æt. 21 years, fell on the ice and struck his face; in trying to rise, he fell again, striking on the occiput; he was not unconscious; was confined to his bed; restless, pupils unequal, slight pulse; temperature 38.9° C., with fall and rise at one time to 41° C.; rhinoscopic examination reveals diffuse, bright-red mucous membrane, partly covered with flaky, purulent excretion; the cartilaginous septum considerably swollen, so that both sides of nose were almost closed, and thus examination of the deeper structure was impossible.

CASE 11. (*The Kommune Hospital*, 1888).—Peter T., æt. 15 years; lower area of nose was suddenly swollen, without apparent cause; red and sore; only scanty air-passage, and very limited nasal respiration; exterior of nose thick and swollen; septum considerably swollen, and fluctuating tumors on both sides; both nostrils are filled with abundant inspissated mucous. Rinsing with salt water.

CASE 12. (*The Kommune Hospital*).—Richard N., æt. 7 years, received a blow on the nose; in the following two weeks a perichondritis sept. nasi developed; patient being anaesthetised with ethyl-bromide; considerable pus was evacuated; occasional pain was complained of; the nasal air-passage was completely occluded; two days after first incision another was made on both sides of septum, and quantity of pus exuded; three days later the abscess had been emptied; septum then resumed normal size and condition.

CASE 13. (*The Kommune Hospital*, 1892).—Pernille P., æt. 37 years, received blow on nose; later large bilateral tumors developed on anterior septal area; dorsum nasi much thickened; there was spontaneous perforation of the septum, with discharge of pus from left side of nose. Warm douche.

Of the cases reported, five, of the Kommune hospital, occurred in the last eight years; seven, of the Polyklinik, in the last six years—in all, trauma was the cause, except in case 11; trauma was sometimes accompanied by hæmorrhage (cases 1 and 9), or the bleeding appeared at later stages of the development of the hæmatoma (cases 1 and 5); development of the tumor without pain occurred in eight cases; in the eleven cases in which a complete diagnosis was possible, the result was an abscess-formation with sero-purulent (cases 7 and 9), or clear pus contents; eight cases required incision; in three there was spontaneous perforation; with one exception (case 1) the hæmatoma was bilateral, symmetrically located on either side of the cartilago quadrangularis; perforation of the septum was seen only in case 7; in cases 7 and 12 there followed deformity of the dorsum nasi.

The question may be raised: Are these reported cases examples of

true hæmatoma? Pus or sero-purulent fluid, and not blood, was evacuated; hæmatoma in which there is an exudation of blood or liquor sanguinis, is very rare; Fishenich mentions one case in which there was an evacuation of fluid blood from the tumor three days after the trauma; hæmatoma rarely comes under observation and treatment in the initial stages of its development, but usually after the lapse of eight to fourteen days, and then the contents have had opportunity of undergoing purulent change.

Another point worthy of consideration is that when hæmorrhage occurs primarily, there is a distension of the blood-sac covered by mucous membrane, which prevents nasal respiration, and in the cases reported this usually occurred within one week after the trauma. If there is suppuration, with accompanying œdema, the perichondrium will be swollen, more pliable, so that it may be easily separated from the cartilage; the mucous membrane will also participate in this inflammatory reaction, and nasal respiration will be occluded.