

right renal pelvis is dilated and pouch-like, the mucosa thickened and covered with a somewhat yellowish exudate, and the cavity contains a mulberry-like calculus 15 mm. in diameter. The right ureter is slightly dilated.

Microscopic Examination.—The brain tumor consists of practically normal hyaline cartilage throughout. The renal calculus is somewhat stratified and chemically consists mainly of phosphates, some oxalates, traces of xanthin and some organic material.

Osseous deposits in the dura, or small osseous projections from the inner surface of the skull are not infrequent, but the development of a definite tumor, benign in character, is a rare condition, especially chondroma. Gowers does not mention them. Mills refers to them as usually springing from the base of the skull in the form of flattened masses arising either from the bones, or from the dura, and lying like plates on the brain. Starr also refers to their extreme infrequency. No report has been discovered of any intracranial growth of the size of this one. Various authors refer to some the size of oranges, a closed fist, etc., so that this evidently is of an extraordinary size.

The effects produced by a slowly growing intracranial tumor are well shown in this case, involving, as it does, all the structures entering into the formation of the cranial cavity, as well as the contents thereof.

The case is illustrative of a group whose clinical manifestations are similar to and not always differentiable from those constituting the symptom-complex of true, idiopathic epilepsy. Judging from the clinical report one may safely assume that the growth was present at the time of the first so-called epileptic seizure. To what extent it had developed at that time, or to what degree it had involved the brain substance is impossible to say. It is possible, of course, that the epileptic seizures were primary, and the development of the tumor a secondary phenomenon, which may have been the result, directly or indirectly, of those seizures or the conditions producing them, or it may have had no connection with them at first.

The probabilities are, however, that the growth was the direct and exciting cause of the epileptiform seizures, and it does seem that there should be some means rendering possible a diagnosis between the two conditions at a time when operative procedures would be beneficial. But, as yet, we must confess to an inability to do so, since, on the one hand, one often meets with cases which, during life, are looked on as true idiopathic epilepsy, and the autopsy reveals the presence of some organic lesion, while, on the other hand, cases are also met with regarded as epileptoid, due to some organic lesion, but operation and autopsy fail to discover existence of any such trouble.

CALCIFICATION OF THE VAS DEFERENS AND THE SEMINAL VESICLES.*

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During my stay in the Pathologic Institute of the German University in Prague, I had the opportunity of examining some cases of pathologic changes in the ampulla of the vas deferens and the seminal vesicles. Two of these seemed to be more than ordinarily interesting and, as little is to be found in the literature concerning calcification, particularly in this region, they appear to justify publication.

CASE 1.—From Professor Pribram's clinic.

* From Professor Chiari's Pathologic Institute in Prague.

Patient.—Man, aged 63, died at 5 a. m., Feb. 4, 1906. The body was brought to the pathologic institute with the clinical diagnosis of *endarteritis obliterans, gangraena digiti I. et II. pedis sin., tetanus traumaticus*.

AUTOPSY.

Anatomic Diagnosis.—This was briefly as follows: Traumatic tetanus. Old endocarditis involving the bicuspid valve, with stenosis of the opening of the left vein and thrombosis of the valves. Embolism of left popliteal artery, with consequent necrosis obliteration of first and second toes of the left foot and ulceration of the skin of the left heel. Cicatrices of the kidney due to infarcts. Hemorrhage into the left rectus abdominis muscle. Suppurative bronchitis.

Macroscopic Findings.—The genital organs were without pathologic changes, except that in the wall of the mesial part of the inferior third of the right seminal vesicle near the right vas deferens a mass of bone-like consistency was found, egg-shaped of the size of 0.25 c.cm. (Fig. 1). This condition of the seminal gland could be caused by only two pathologic processes: (a), a partial calcification of the seminal gland, not unlike a case described by Chiari in 1903; or, (b), by a phlebolith. When strong sulphuric acid is applied to a small piece of calcified mass characteristic crystals of calcium sulphate are produced. This chemical test was not applied here.

Microscopic Findings.—A microscopic examination of the

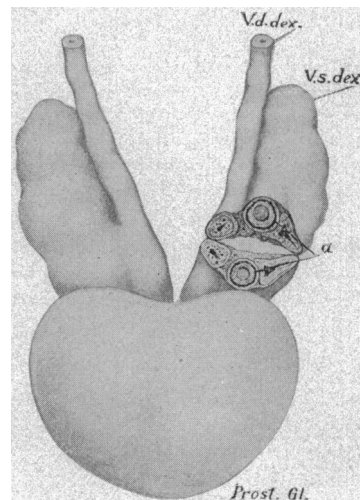


Fig. 1.—Calcification of the right seminal vesicle. a, Section of the calcified mass in the seminal vesicle. V. d. dex., Vas deferens right side. Normal. V. s. dex., The right seminal vesicle showing the calcified mass. Prost. Gl., Prostate gland. Normal.

seminal gland was undertaken in order to decide the true nature of the pathologic findings. A horizontal lamella was taken from the place of the seminal vesicle, which apparently seemed to be bone-like in consistency; it was put in Perényi's solution (10 per cent. nitric acid, 40 c.cm.; absolute alcohol, 30 c.cm.; 0.5 per cent. watery solution of chromic acid, 30 c.cm., and washed in 70 per cent. alcohol). After this process the bone-like consistency disappeared, and one could now conclude that this appearance was undoubtedly due to lime-salts. It was then embedded in celloidin, and the microscopic sections were stained with hematoxylin-eosin and Van Gieson's stain.

The epithelium was everywhere well preserved, and presented one layer only. The mucosa was without any pathologic changes, but, in the intercellular substance of the two outer layers of the tunica muscularis, a network-like mass, deeply stained by hematoxylin. It was homogeneous, and in places fine globular granules, with some concentric bodies here and there within the network, could be seen. The mass was circular in outline, following the circular and the outer muscular layers especially. (Fig. 2.) There was no tendency of the mass to enter in proper union with the tissue; it seemed to be undoubtedly only a lime-salt infiltration in the intercellular substance. The adjacent connective tissue in some places was found to be sclerotic.

COMPARISON WITH CASES REPORTED BY CHIARI.

In 1903 Chiari¹ reported two cases of calcification of the vas deferens, and one case of calcification of the vas deferens and of the seminal vesicle. It may not be out of place, therefore, to summarize briefly some of Chiari's findings and conclusions. He found in one of his cases the ampulla with the seminal gland altered into a hard mass impossible to cut with a knife. Externally the ampulla and the seminal vesicle were about normal in size,

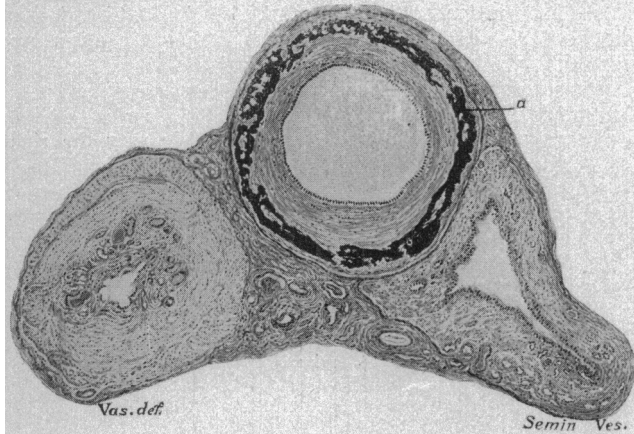


Fig. 2.—Cut section of the right seminal vesicle. Low power. a, Represents the calcified mass in the muscularis. Other structures normal.

as well as the lumen in which the mucosa was also found the form of small white spots in the tunica muscularis, and the latter could be seen with the naked eye. The ejaculatory ducts were free from the calcification. In fresh sections from the wall of the ampulla and the seminal vesicle under the microscope were found amorphous opaque bodies lying in the muscularis in numerous

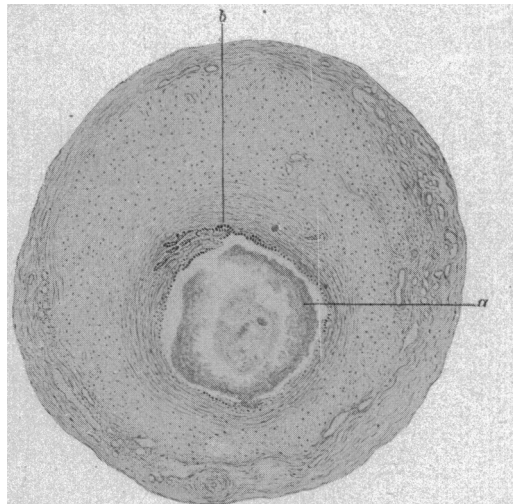


Fig. 3.—Obturation with calcification of the left vas deferens. a, Obturated lumen with calcified mass. b, The epithelial layer. Other parts normal.

places. When a little sulphuric acid was added to these bodies on the slide, the masses became loose, evolution of gas followed and finally deposits were left behind which appeared to represent crystals of calcium sulphate.

Other parts were decalcified, prepared and devoted to the ordinary microscopic examination. The results obtained were the following: Spermatozoa were found in

1. Chiari: "Ueber senile Verkalkung der Ampullen der Vasa deferentia und der Samenblasen." *Zeits. f. Histkunde. Abteilung für path. Anatomie*, 1903.

the ampulla and in the seminal gland. The epithelium was well-preserved and presented one layer only; the mucosa was found to be intact. In addition, Chiari describes a brownish granular pigment at the base of the cylindrical epithelial layer; this was negative in my case. He also mentions a sclerosis of the connective tissue in the areas of calcification. The infiltration of lime salts

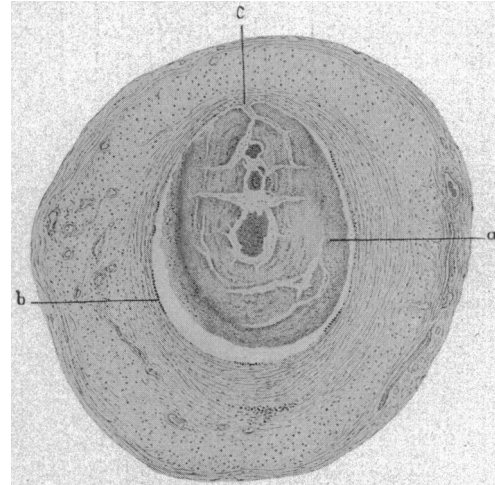


Fig. 4.—Same as Figure 3. c, Shows connective tissue penetrating the calcified mass within the lumen.

was found to be situated exclusively in the tunica muscularis.

These findings excellently verify the microscopic picture of my first case. Finally, we reach the following conclusions: (1) My case presents a complete analogy with the cases of Chiari. (2) The calcification in all

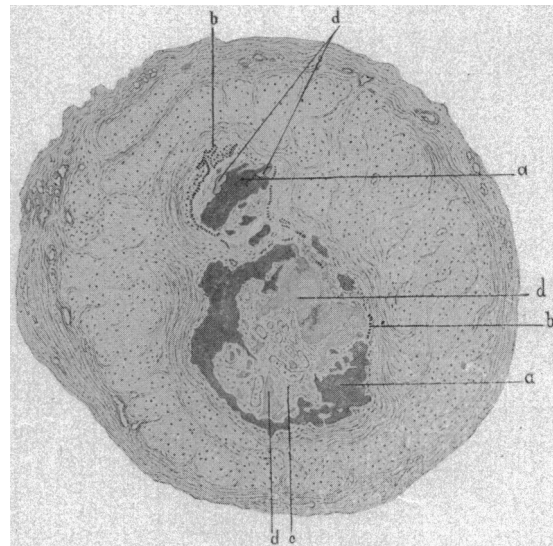


Fig. 5.—Same as Figures 3 and 4, but in addition this shows the ossification or bone-like structures, d.

the cases occurs in elderly men. (3) In Chiari's cases and also in my case, a pure regressive metamorphosis of the tunica muscularis without any pathologic changes in the mucosa, and without any inflammatory process of the ampulla of the vas deferens and the seminal vesicle respectively, was apparent.

With regard to the etiology of the sclerosis of the connective tissue, it is well said by Chiari, that: "this may be an expression of a senile change of the muscularis." Furthermore, he found by a comparative examination

of the ampulla of the vas deferens and the seminal vesicles of several old men, that a sclerosis of the connective tissue is not seldom found and that calcification may follow sclerosis. A slight senile osteoporosis may co-operate, or an affection of the kidneys, which is common in old age, may also be responsible for these processes, perhaps hindering the excretions of the lime salts.

This form of calcification, as suggested by Chiari, should be distinctly separated from the calcification of these same organs by chronic inflammations, which changes have been described by different authors under the name of ossification. Lallemand² has reported a case of suppuration, induration, and ossification of the seminal glands, due to chronic inflammation. Rokitsky³ declares, that in the thickened wall of the seminal vesicles "small bone formation" is sometimes found. Klebs⁴ speaks of calcification in the chronically inflamed seminal vesicles. Guelliot⁵ describes a case of induration of the walls of the vas deferens and the seminal vesicles after repeated attacks of blennorrhoea in a tuberculous patient. Orth⁶ speaks of chronic deferentitis and *vesiculitis seminalis*, in which a gradual thickening of the walls can appear and in which an infiltration of lime salts can take place.

Since the publication of the reports by Chiari, a careful search of the literature for the report of such cases of calcification of the genital organs proved fruitless. Posorisky⁷ recently published an extensive article on heteroplastic bone formation in the tissues and organs in general. In connection with the genital organs, he states that in the genitourinary system in males as well as in females, bone formation occurs very seldom, and does not mention at all the calcification of the vas deferens and the seminal glands.

CASE 2.—The patient, a man aged 53, died Nov. 9, 1904. The body was sent to the autopsy room from Professor von Jaksch's clinic, with this diagnosis: Moribund when received. Left hemiplegia, probably from apoplexy. Pulmonary tuberculosis. Circumscribed peritonitis. Icterus of unknown origin, perhaps from cirrhosis of the liver. Anal fistula.

Anatomic Findings.—Anal fistula, probably tuberculous. Ichorous pus in the cellular tissue, in the preperitoneal cavity, and around the rectum. Bloody, fibrinous peritonitis. General icterus. Softening of brain of long standing in right hemisphere, from embolus in artery in right fissure of Sylvius. Former tuberculosis of apex of lungs and peribronchial lymph glands. Tuberculous ulcer of small intestine.

Genital Organs.—The left vas deferens for nearly 2 cm. just a little above the point where it joins with the seminal vesicle was found to be hard and bone-like in consistency. On cut surface across, one could find within the lumen a "calcified clot." The left seminal vesicle was found to be normal.

The right vas deferens and seminal gland were apparently normal, not only externally but internally.

Microscopic Examination.—After decalcification cross sections from the left vas deferens showed above and below the part which was hard in consistency quite normal structures. In the hard portion (Figs. 3 to 5), one could find a partial thrombosis of the vas deferens by a calcified and coagulated mass, with a partial obliteration of the lumen by connective tissue, which contained the calcified masses with small pieces of bone-like structures (Fig. 5, d). This connective tissue was

growing inward from the wall of the vas. In this connection may be mentioned the color display which the sections showed under the microscope when stained with methyl-violet. The bone-like structures were violet-red, the calcified masses took dark-brown color, while the connective tissue was light red. The epithelium in places was intact, while in some parts of the sections it was either displaced or entirely disappeared.

CONCLUSIONS.

Here is a quite different form of calcification, not merely a retrogressive metamorphosis, but a calcification in connection with chronic inflammation. This case is related to the cases by different authors mentioned above. It is very likely that here was the effect of gonorrhoeal deferentitis. Simmonds⁸ in his article on etiology of sterility mentions strictures of the vas deferens with a complete obliteration of the lumen. In my case there was no doubt the process of obliteration, which is analogous with so-called organization of the thrombi of the arteries. Here, also, the bone-like masses may not be considered a strange condition because everyone knows that ossification, relatively speaking, is a common consequence of calcification.

From a clinical standpoint calcification of these organs has no special significance, yet in some cases rectal examination may reveal presence of such a mass, which may easily be mistaken for stones or neoplasms in the bladder. From the theoretical point of view it is interesting.

RELATIONS OF THE SUPERIOR AND INFERIOR RECTI MUSCLES TO CONVERGENT SQUINT.*

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Since the last meeting of the Section on Ophthalmology of the American Medical Association I have had the opportunity of studying another case in which extended tenotomy for convergent strabismus was done five years ago. This case, which illustrates some of the points to which I wish to call attention at this time, is briefly as follows:

Patient.—Mrs. C., aged 51, has suffered from alternating convergent strabismus for many years, probably from childhood. She has irregular astigmatism with low myopia.

R. 4/12 with — 1 = — 0.25 cy. ax. 90° = 4/9, mostly.

L. 4/15 with — 1 = — 0.75 cy. ax. 165° = 4/9.

The squint amounts to 35 or 40 centrad, and with prisms of this strength, base out, she obtains binocular single vision. Stronger prisms give crossed diplopia.

Operation.—June 17, 1901, under cocaine, I stretched the right internus and nasal margins of the right superior and inferior recti; then divided the insertion of the internus and the nasal half of the insertions of the superior and inferior recti, in the manner described last year.¹ A good deal of convergence remained until the inferior tendon was cut. Then the eye became quite straight. The next day all dressings were omitted. This caused some dizziness and confusion so that she "wished to keep quiet." The eye seemed quite straight. There was no deviation or recovery under cover, when looking straight ahead, but movement of the right eye toward the left was markedly limited, and diplopia appeared when the object of fixation was carried from the right to the left field, or brought close to the eyes. Two days after the operation there was less confusion about walking and using both eyes, and few mistakes as to the position of objects. At the end of one week:

8. Simmonds: "Die Ursachen der Azoospermie." Deuts. Archiv. f. klin. Med., vol. lxi.

* Read in the Section on Ophthalmology of the American Medical Association, at the Fifty-seventh Annual Session, June, 1906.

1. THE JOURNAL A. M. A., Aug. 19, 1905, p. 522.

2. Lallemand: "Des pertes séminales involontaires," Paris, 1836-1841 citiert nach Guelliot.

3. Rokitsky: "Lehrbuch der pathologischen Anatomie," 1861, vol. iii.

4. Klebs: "Handbuch der pathologischen Anatomie," 1876.

5. Guelliot: "Des Vesicules séminales." Anatomie et pathologie, Paris, 1883.

6. Orth: "Lehrbuch der speziellen pathologischen Anatomie," 1893, vol. ii.

7. Posorisky: "Ueber heteroplastische Knochenbildung," Beitr. z. path. Anat. und zur allg. Path. von Ziegler, vol. xxxvi.