PHLEBO-THROMBOTIC ULCERS OF THE VAGINA.

By WALLACE F. GROSVENOR, A.M. (Oberlin), M.D., Chicago.

From Prof. Chiari's Pathological-Anatomical Institute in Prag.

Numerous different forms of ulcerative processes are described by various observers as taking place in the vaginal mucous membrane. Erosions occur in acute inflammations, in the gonorrhœal form as well as in those forms of vaginitis which are often among the sequelæ of the acute exanthemata, cholera, etc.

Diphtheria also appears in the vagina with its characteristic pseudo-membrane, which sloughs off and leaves losses of epithelium, which, in some reported cases, resulted in atresia of the vaginal lumen through adhesions. In the lying-in room one finds ulcers following the abrasions of the vaginal walls, caused by a severe labour, and also ulcers resulting from the œdema and consequent sloughing of the walls which sometimes occurs in these cases. Anthrax has been reported as the cause of some cases of phlegmonous ulcers. The old "hospital gangrene" was responsible for some cases. Those forms resulting from foreign bodies, whether pessaries or objects introduced for the purpose of onanism, etc., and from prolapse of the vagina, may all be assigned to trauma and decubitus. Some forms are due to rectal and vesical fistulæ. Eppinger has described a colpitis dysenterica found in severe cases of dysentery where the infection seems to have invaded the vagina over a very thin perineum. Noma of the vagina has been observed, both alone and accompanying noma of the cheek. Neumann reports two cases of aphthous ulcers, occurring simultaneously in the mouth and vagina. Kleinwaechter reports one case of pemphigus vaginæ. Ulcers often take place in the course of colpitis emphysematosa and colpitis nodularis.

The indurated or hard chancre of syphilis belongs to the labiæ and introitus, and is very rare in the vagina, while the soft sore has been more often reported, although not common. Tuberculous ulceration of the vagina is also reported, being usually a result of extension from the uterus. Sarcomatous ulceration is quite a rare affection, as far as the vaginal walls or mucosa are concerned. Carcinoma is quite frequent, both as an extension from the cervical carcinoma and as the so-called cancrioid or flat ulcerative process, which primarily affects the

mucous membrane without a great deal of infiltration into the deeper parts of the vaginal walls. The vaginal mucosa is also involved by the now recognised form of "contact-cancer," occurring where the vaginal walls lie continually in contact with the cancerous processes on the cervix uteri. Then the ichorous pus from a uterine cancer often brings about ulcerative changes in the vagina by erosion.

But of special interest are certain forms of ulcers of the vagina, which are not so readily understood, as their etiology is not yet so clear. Indeed, it is this category of ulcers, of which the "*ulcus rotundum* (Zahn)" is the chief type, which is in need of more thorough investigation. I now record, therefore, certain cases belonging to this group, which were kindly given to me for investigation by Professor H. Chiari, while I was working in the Pathological-Anatomical Institute of the German University in Prag.

CASE 1.—Museum Preparation, No. 5044.—A stonecutter's wife, æt. 32, died in the clinic of Prof. Pribram, in the General Hospital of Prag, with symptoms of Bright's disease, but without complaining of the vagina, or being examined per vaginam. The post-mortem examination was made in the above-mentioned Institute, 29th April 1896, twelve and a half hours after death.

FIG. 1.—Phlebo-thrombotic ulcers of vagina from Case 1.

walls, showing on the cut section the blood vessels enlarged and thickened in the walls, and gaping—a condition very significant of previous pregnancy.

The pathological-anatomical diagnosis runs as follows:—

Emphysema pulmonum.
Bronchitis suppurativa.
Pleuritis adhæsiva bilateralis.
Hypertrophia cordis ex-
centrica ventriculi dextri.
Endocarditis chronica ad
valvulam mitralem et ad
valvulam tricuspidalem.
Thrombosis venæ jugularis
sinistræ. *Infarctus hæmor-*
rhagici pulmonis sinistri et
anæmici renum. *Hyperæmia*
mechanica et hydrops uni-
versalis. *Tuberculosis ob-*
soleta apicis pulmonis sinistri.
Foramen ovale apertum.
Hernia inguinalis bilateralis.

The record of the genital organs states that the uterus was of ordinary size, with hypertrophied

The cervix was divided into anterior and posterior lips by bilateral scars. The right ovary contained a fresh corpus luteum, otherwise in normal condition. In the broad ligament between the ovary and the fimbriated extremity was found a parovarian cyst the size of a walnut. Both tubes, as well as the left ovary, were normal, but there was a similar cyst in the left broad ligament. The pouch of Douglas was smooth and free from adhesions. In the veins, which were of large size, in the ligamentum latum, and in the interstitial tissue between the vagina and rectum were large, extensive, well-defined thrombi. The vagina itself was somewhat narrow, the transverse rugæ not prominent, the mucosa very red and congested. In the middle line of the posterior wall (see Fig. 1), commencing 2 cms. from the cervix, were four round, rather shallow, sharp-edged ulcers, about 2 mm. in diameter, and also a longer oval one measuring about 7 by 3 mm.

I examined three of the four smaller ulcers microscopically, using the celloidin method of embedding and the hæmatoxylin-eosin stain, as in all the work on this subject. In the first ulcer the epithelium of the mucous membrane was ragged on the borders of the ulcer, and was entirely wanting over the ulcer surface proper, except for one or two islets, consisting of perhaps two layers of cuboidal epithelial cells, raised from the basement membrane by a large amount of small round-cell infiltration. This infiltration of the superficial layer marked the entire ulcer base, and beyond the apparent edge of the ulcer—beneath fairly well preserved epithelial layers—was a zone of stronger and deeper infiltration, as though building up the inflammatory wall. The remnants of epithelial cells and infiltrating leucocytes, as well as the connective tissue of the submucosa itself, within this zone, were markedly oedematous, so that the cells were swollen out of all normal proportions. In this oedematous mucosa, quite superficially situated, was a thrombosed vein, the lumen of which was filled with coagulated fibrin, partly homogeneous and partly in the form of a network, with leucocytes embedded in its meshes. Lying directly under the centre of the ulcer, in the first muscular layers, under the submucosa, near its accompanying arterial twig, was a larger venous branch, the lumen of which contained a deeply blue-purple stained, solid thrombus. The rich vascular spaces of the submucosa were extensively dilated, and the oedema, although less marked, extended through the whole vaginal wall. The ulcerating surface showed no bacterial invasion as demonstrated by the sections stained by the Weigert method and by Löffler's methylene-blue. In the second ulcer the general conditions were precisely the same as in the first, with the exception that the small round-cell infiltration seemed to be scattered about, accompanying the lymph channels in the submucosa. The superficial thrombosed venous twigs were present, though not in such abundance and perfection as in the third ulcer. In the third ulcer, the vaginal epithelium was almost perfectly preserved to a sudden sharp fall at the edge of the ulcer. The infiltration was only superficial and of very moderate degree, while the oedema was of about the same extent as in the first two. The venous twigs lying superficially in the ulcer base were plainly throm-

bosed, and some four to six could be distinguished in each section, their lumen being all filled with the above-mentioned coagulated fibrin masses. Neither the second nor third ulcers showed bacterial invasion.

CASE 2.—Museum preparation, No. 5045.—A moulder's wife, æt. 37, died in the clinic of Prof. von Jaksch in the General Hospital of Prag, with symptoms of intestinal stenosis, but the vaginal condition was not complained of, or examined. The post-mortem was held at the Institute on 16th June 1896, ten hours after death.

The pathological-anatomical diagnosis follows:—

Stenosis ilei hernia cruralia dextra Littriana accreta effecta. Tuberculosis obsoleta apicum pulmonum. Diverticula tractionis cesophagi. Emphysema pulmonum. Dilatatio ventriculi cordis dextri.

The record states that the uterus was of ordinary size, firm consistence,

FIG. 2.—Phlebo-thrombotic ulcers of vagina from Case 2.

thick walled, showing plainly the large open blood vessels; and the cervix, which contained a small retention cyst on the anterior lip, was divided into anterior and posterior lips by two laterally situated scars. The tubes and ovaries were in normal condition, and the pouch of Douglas was free from adhesions. The vagina (see Fig. 2) was of moderate width, and smooth, with slight reddening of the mucosa, and there were found in the upper half of the vagina, in its entire circumference, numerous round or oval shallow ulcers of about 1-2 cms. in diameter. The veins and arteries of the genital organs showed no abnormalities, and were free from visible thrombi.

Two of these ulcers were examined microscopically. The first specimen showed that the epithelium had suffered the loss of nearly half of its layers, which condition proved to be true of the whole affected area, as though from

a colpitis. Here the remaining epithelium was well maintained to the edge of the ulcer, though at the edges somewhat lifted from the basement membrane. Over the ulcer it was entirely wanting. The inflammatory infiltration in the ulcer surface was not well seen, as there was a superficial necrosis which did not allow the nuclei to take the stain well, though the infiltrating leucocytes were quite abundant through the whole of the vaginal wall in the section.

The necrotic layer, as well as the tissue layers of the whole mucosa

beneath the ulcer, showed well-defined œdema. The numerous small venous branches in the immediate ulcer ground, as well as those larger veins extending deeper into the mucosa, were all filled with well-defined thrombi, consisting of fibrin and leucocytes. Sections stained by the Weigert method and with Löffler's methylene-blue showed abundant groups of cocci and bacilli in the necrotic superficial layer.

The other specimen contained two or three small ulcers close together, and the epithelium was wanting between them as well as on the ulcer surface. The same necrotic superficial layer was here divided from the remaining portion of the section by a well-defined zone of small round-cell inflammatory infiltration, which extended well beyond the margin of the ulcers. The œdema here occupied the inflammatory zone as well as the necrotic layer. The thrombosed veins were even more numerous in this specimen than in the first. In this specimen the same groups of cocci and bacilli were very numerous, but they occupied only the surface of the ulcers proper, and showed little inclination to penetrate even the necrotic layer.

In these cases, Nos. 1 and 2, we see well-marked central disturbances of the circulation, with corresponding effects on the general circulation. In Case 1 there are emphysema pulmonum and valvular affection of the heart, while in Case 2 there is also emphysema pulmonum.

Thus, the œdema found locally in the vagina may be readily explained as being only part of a general condition. This condition of universal congestion and œdema also explains the thrombosis in the vaginal veins. The congestion, venous stasis, œdema, and thrombosis of the veins, form a well-connected chain of events in the causation of the necrosis, loss of epithelium, and final ulceration in the vagina. As the affection was so entirely confined to the venous elements, I propose the term *phlebo-thrombotic ulcers*. That this form of ulcerous affection of the vagina is not so uncommon is seen by a third case which occurred at about the same time in the Pathological Institute.

CASE 3.—This third and, probably, quite analogous case was that of a fifty-six-year old labouring woman, from the clinic of Prof. Pribram. She died with symptoms of Bright's disease, and had not complained of the vagina. The post-mortem examination was made in the Institute on 14th May 1896, fourteen hours after death.

The pathological-anatomical diagnosis is as follows:—

Endocarditis chronica ad valvulam bicuspidalem et ad valvulas aortæ. Hypertrophia cordis ventriculi sinistri. Endarteritis chronica deformans. Vegetationes globulosæ ventriculi cordis sinistri. Encephalomalacia multiplex præcipue lobi occipitalis sinistri. Infarctus hæmorrhagici et anæmici renum. Infiltratio hæmorrhagica mucosæ uteri. Embolia arteriæ pulmonalis. Tuberculosis obsoleta apicum pulmonum et glandularum lymphaticarum peribronchialium. Diverticula tractionis œsophagi.

It being impossible to make a microscopical examination in this

case, as the gross specimen was mislaid and lost, I can give only the local condition as found and recorded at the post-mortem examination.

The mucosa of the uterine cavity was in a condition of hæmorrhagic infiltration. The adnexa on both sides normal. The mucosa of the somewhat narrow vagina was reddened, and in the upper posterior portion, as well as on the cervix uteri, it was dark red and congested. In this hyperæmic and hæmorrhagic infiltrated part were found several superficial shallow ulcers of different sizes, up to some measuring $\frac{1}{2}$ cm. by 1 cm. These were not covered with a film of pus.

Here also were the same typical central circulatory disturbances which correspond so well to those found in the first two cases. Therefore, considering the identical anatomical appearance of the ulcers in this case, I incline to the opinion that these were of the same order as those in Cases 1 and 2. But this is only a probability, as the microscopical examination was not made.

As showing the absolute necessity of a microscopical examination in these cases, I mention a fourth case observed in Prag at about the same time.

CASE 4.—Museum Preparation, No. 5046.—The post-mortem was held at the Hebrew Hospital by an assistant from the Pathological Institute, on 3rd May 1896. As seen by the illustration (Fig. 3) the ulceration found in this case appeared, microscopically, to be identical with the first case, as reported by Zahn, in position, size, etc., but on careful preparation of a sagittal section, through the entire ulcer, the microscopical examination demonstrated a perfect picture of carcinoma.

FIG. 3.—Carcinomatous ulcer of vagina from Case 4.

By most of the earlier Continental writers, Clarke of England is given the credit for first mention of the *ulcus corrodens* or phagedænicum of the vagina; he describing it as affecting the portio and vagina, and as being rapidly destructive in its course. The form he describes was probably a gangrene in some cases, and in others a cancerous process.

The Continental authors at first classed this form of quick destructive ulcer under carcinoma, and for a large number of cases rightly,—but certain investigators,

Rokitansky, Klebs, and Förster, finally declared that there was a certain percentage belonging to a group strictly outside of cancer limits, and ascribed various causes, such as lupus, acrid secretions, and perhaps circulatory disturbances.

When Zahn, 1884, reported his first case, he mentioned the name "Ulcus Clarke," but, as he was able to make out a definite etiology in his own case of an obliterated terminal artery, and a lack of collateral circulation, he proposed the term "ulcus rotundum," on account of its similarity in appearance and etiology to the common round ulcer of the stomach. His case was found in making the post-mortem of a female, æt. 76, where there was considerable arteriosclerosis generally, and notably in the uterine and vaginal arteries. The ulcer was located in the posterior fornix, close to the cervix, and was 1½ cms. in diameter. Microscopically, he was able to demonstrate the sclerosis, in a high degree, of the uterine and vaginal arteries, and also that a small twig from the vaginal artery running to the ulcer itself was entirely occluded by sclerosis.

Browicz, 1887, found one in a post-mortem of a fifty-eight-year old woman, where on the cervix uteri was situated one, and on the upper portion of the vagina eight, other black necrotic spots. The arteries in the neighbourhood were atheromatous, and on microscopic examination he found the small vessels on the border of the necrotic spots obliterated and filled with spindle-shaped cells. He ascribes the cause to the obliteration of the blood vessels, and stated that he thought that the theory, as advanced by Klebs, of the influence of acrid uterine secretions was now wholly superfluous.

Zahn, 1889, had a second case in the post-mortem of a woman, æt. 51, there being found several ulcer-like spots where sub-epithelial venous hæmorrhages had taken place, followed by superficial necrosis. In this case he assumes his previous position of a trophic or circulatory disturbance, and divides the causes under two heads: *Local*.—Senile arterial changes, such as thrombosis and plebolith formation, and perimetritic congestion. *General*.—Senile heart and arterial changes, and chronic lung difficulties, such as emphysema, etc.

Defay, 1889, found a supposed *ulcus rotundum* (Zahn), but the microscopical examination revealed a tubercular ulceration.

Braithwaite, 1894, under the title, "Destructive Ulceration in the Vagina," gives clinical notes on some four or five cases. One he saw twenty years ago, and operated, as he suspected cancer, but microscopically it proved non-malignant, and the case healed nicely. The other cases, of more recent date, two in his own practice, and two in that of a colleague, were all in patients some 50 or 60 years old, and proved very obstinate to local treatment, though one yielded to a change of climate; he therefore attributed it to enfeebled health caused by bad hygienic surroundings. One case had a history of colpitis, ulcer with hæmorrhage, great pain and burning irritation,

so that the patient was practically bedridden. The author thought that the trouble was of bacterial origin, which the enfeebled health was unable to combat successfully.

Skowronski, 1894, also saw a case clinically, in a patient, æt. 37, with a history of a three months' discharge, with great burning and irritation, making it impossible to walk. She was pale and anæmic. The ulcer was situated in the anterior wall of the vagina, some 2 or 3 cms. behind the meatus urethræ; it was progressing and threatening penetration of the bladder. The patient had never worn a pessary, and no venereal history could be made out. The author operated by simply excising the ulcer, which resulted in definitive healing. Examining it microscopically, he found the vessel walls hypertrophied, and the vessels filled with spindle-shaped cells, giving a "perfect picture of vessel obliteration."

Beuttner, 1896 (working in the Institute of Prof. Zahn), besides giving a review of the literature, gives two further cases from post-mortems in that institute.

CASE 1.—Æt. 49, with hypertrophy of the heart, and symptoms of congestion in lungs, liver, kidneys, and other organs. In the vagina were found numerous ecchymoses, and some 3 cms. from the os uteri, on the posterior wall, an ulcer 15 by 12 mms. in size. The edges were thin, but undermined, and the surface of the ulcer fairly even.

CASE 2.—Æt. 58, with even more pronounced heart and general congestive symptoms, including emphysema of the lungs with emboli in the pulmonary arteries, ecchymoses in the stomach, and an *ulcus rotundum* in the duodenum. In the vagina, just to the left and under the os, was found a triangular scar, measuring 7 by 5 by 6 mms., which the author describes as the scar of a well-healed *ulcus rotundum vaginæ*.

The microscopical examination in both cases was without further result, as the morbid process was finished, and the preparations were too long preserved. Beuttner allows that the changes in the vessel walls and the vessel obliteration are the principal causes of these ulcers, but he wishes to ascribe the cause partially to the influence of, perhaps, acrid secretions from the uterus, which he thinks could play an important rôle in causing their appearance always on the posterior wall of the vagina, over which this secretion must naturally flow. That is, he wishes to bring back into the discussion the etching theory of Prof. Klebs, which Browicz thought no longer necessary, since the finding of the well-defined arterial changes in the microscopical examinations made by Zahn, Browicz, and Skowronski.

In comparing my cases of ulcers of the vagina with those published by the above-mentioned authors, and referred by them to the vascular changes, there can be no doubt that all the cases belong to one category of ulcers of the vagina, *videlicet*, caused by vascular changes. But, while in the cases described by these authors, the vascular changes were found mostly in the arteries, in my cases the

vascular changes were found only in the veins. The veins were thrombosed, and this thrombosis of the veins was, as I have stated, the cause of the ulcers in the vagina. The arteries did not show any changes. I think, therefore, that it is necessary to give a new name to these ulcers of the vagina which I have described, that is, *phlebo-thrombotic ulcers*.

It seems to me that these phlebo-thrombotic ulcers of the vagina, in cases of universal mechanical hyperæmia or venous stasis, should not be a rarity. The three cases which I have described were found in one pathological institute, in the relatively short space of time of two months. I believe it will be possible to note this form of ulceration more frequently, when the attention of prosectors is directed to its occurrence.

The clinical importance of these phlebo-thrombotic ulcers may be inconsiderable, as in no case was a vaginal disturbance clinically mentioned; these vaginal ulcers being in all cases a chance discovery at the post-mortem table. Still it is impossible to exclude the fact that such phlebo-thrombotic ulcers of the vagina might cause important disturbances in the patient, which would call the attention of the clinician to their existence.

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