Natural History Of A Cervical Cavernous Hemangioma Through Two Pregnancies

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Benign vascular tumors are common and are found in a wide distribution throughout the body. Hemangiomas of the uterine cervix, however, are extremely rare, and controversy surrounds their management during pregnancy and delivery. Most hemangiomas regress and do not cause problems, but they can enlarge and cause profuse hemorrhage. Expectant management has been described for asymptomatic women with small tumors. The patient described here had a cervical cavernous hemangioma during pregnancy that regressed following her first pregnancy and completely resolved after her second pregnancy.

Case Report

A healthy 22-year-old, gravida 1, para 0, Southeast-Asian woman first came to her physician at 20 weeks' gestation without having had any prenatal care. Her history during this pregnancy was free of vaginal or postcoital bleeding, cramping, or gynecologic problems. Results of the physical examination, all laboratory tests, Papanicolaou smear, and cervical cultures were normal. Her cervix was nulliparous and free of any lesions or signs of inflammation. Uterine size was consistent with 20 weeks' gestation.

At 22 weeks' gestation the patient complained of vaginal bleeding, which occurred following blunt abdominal trauma resulting from domestic violence. An examination showed ecchymosis of most of the abdominal wall, and there was an audible fetal heart rate of 160 beats per minute. The cervix was long, closed, and free of lesions or bleeding. Sonography showed a 9-cm extrachorionic hematoma that was due to abruptio placenta.

Management included hospitalization with fetal heart rate monitoring, repeat sonography, and serial hematocrit measurements to document stabilization of the detachment. The patient was discharged and told to remain at bed rest for the remainder of the week. Serial sonographies 1 month later showed a complete resolution of the subchorionic hemorrhage without development of intrauterine growth retardation or polyhydramnios.

At 38 weeks' gestation she came in for evaluation of vaginal discharge and lower pelvic cramping. A generous, fluffy, pale mass with small grape-like clusters covered the anterior cervix (Figure 1). A Papanicolaou smear was repeated and reported to be normal. *Chlamydia trachomatous* was identified by cervical culture, and the patient was prescribed oral erythromycin. During colposcopy, application of acetic acid further defined the lesion as an extensive thick plaque involving most of the cervix. Following consultation with an obstetrician, the lesion was biopsied to rule out serious dysplasia or carcinoma. Bleeding from the biopsy site was initially brisk, but responded to 5 minutes of direct pressure followed by application of ferric subsulfate solution and silver nitrate. No additional bleeding occurred.

The biopsy showed large vascular beds consistent with a cavernous hemangioma. This result was unexpected given the appearance of the lesion and its response to biopsy. A vaginal delivery was planned with provisions for blood replacement and an emergency Cesarean section. Spontaneous labor began at 40 weeks' gestation. A cervical inspection showed the persistence of the tumor. Labor progressed without complication and resulted in the birth of a 7-lb 8-oz boy. There was minimal bleeding throughout the labor and delivery.

The patient's postpartum course was normal except for persistence of the tumor (Figure 2). Laser ablation of the tumor was offered. The patient declined further treatment and did not return until 18 months later. Her menstrual cycles were unchanged, and postcoital bleeding had not caused problems. Colposcopic evaluation at that

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Figure 1. The appearance of the cervical tumor at 38-weeks' gestation was not typical of a vascular tumor.

time showed regression of the tumor, although its appearance was more typical of vascular tumors, which are red and blanch with pressure (Figure 3). One year later she returned for prenatal care of her second pregnancy. The tumor had almost completely resolved. It remained small and asymptomatic throughout the pregnancy (Figure 4).

Discussion

There is little written about cervical cavernous hemangiomas, and a case followed through two pregnancies is unusual. As described by Cherkis and Kamath,[1] expectant management was successful for their patient as well. Lovett and Camden[2] described a case in which primary Cesarean section was required because of the obstruction caused by an 8-cm cervical cavernous hemangioma. Evaluation during their patient's subsequent pregnancy showed spontaneous resolution and thrombosis of the hemangioma.

In this patient the first pregnancy was complicated by abdominal trauma and vaginal bleeding caused by domestic violence. The true rate of domestic violence complicating pregnancy is not known. It is clear that an adverse outcome is possible. Prompt and thorough evaluation and management are essential. Fortunately this patient's extrachorionic hematoma resolved without fetal damage.

One could speculate a causal relation between abdominal trauma, abruptio placentae, and the emergence of a cervical hemangioma. A causal relation is unlikely, however, and no published reports support this association.

Hysterectomy has been the preferred treatment in most previous reports. Ahern and Allen,[3] after an extensive literature review, suggested that because all reported cervical hemangiomas have been benign, they should be treated with a conservative nonoperative approach. The course of cervical hemangiomas varies, necessitating close attention to the tumor throughout pregnancy. Hemangiomas can enlarge during pregnancy and

Figure 2. The 6-week postpartum examination was normal except for persistence of the cervical cavernous hemangioma.

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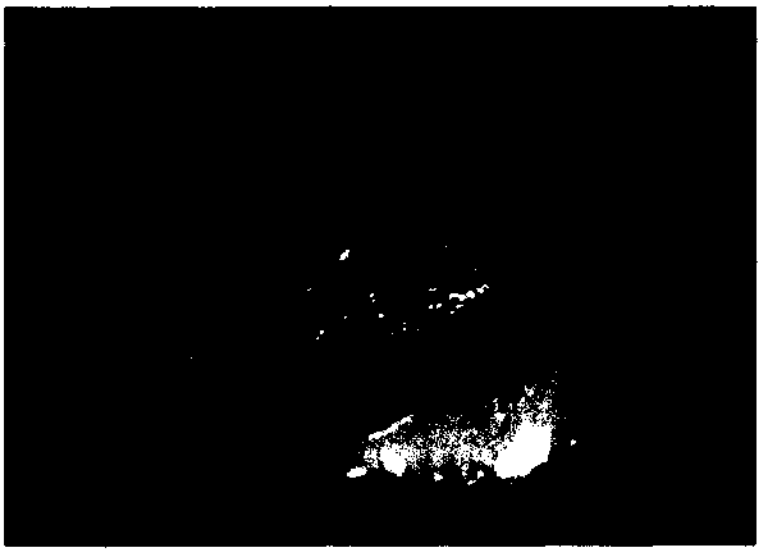

Figure 3. The hemangioma's appearance 18 months later is more typical of a vascular tumor.

cause hemorrhage, particularly if there is an associated infection or ulceration. Serious hemorrhage has occurred but is uncommon. Regression with involution and thrombosis is the usual course.

Hemangiomas can arise in infants, children, or adults from embryonic nests of mesodermal tissue in any structure of the body. Yet despite the ubiquitous distribution of vascular neoplasm and the frequent number of cervices examined routinely, the occurrence in the cervix is exceedingly rare. The exact incidence is unknown. To date fewer than 40 cases have been reported in the medical literature. Most cervical vascular tumors are asymptomatic, reported as incidental findings by a diligent pathologist.

Capillary hemangiomas are composed of capillary blood vessels, whereas cavernous hemangiomas are formed by large vascular beds. Hemangiomas occur two to three times more frequently in female patients than in male patients. Watson and McCarthy's review[4] noted that 73 percent of vascular tumors are present at birth and 85 percent occur by the first year of life, supporting the theory of congenital origin. Many hemangiomas first become evident during pregnancy, however, supporting Machado and Junquieras's[5] belief that a congenital origin does not fully explain the occurrence of the tumor. Inflammation, hormonal cycles, and changes in blood volume are reasons offered by Gusdon[6] as further explanations of the appearance of the hemangioma during pregnancy. Cervical vascular malformation caused by diethylstilbestrol has also been implicated.[7]

Diagnosis of a cervical hemangioma is based on clinical recognition of a discrete, elevated, usually violaceous, spongy mass that blanches with pressure. As described in this patient, one must be cautious when dealing with a lesion that is not distinctly vascular in appearance. It might be necessary to differentiate hemangioma from cervical cancer, especially in the patient with metrorrhagia.[8]

According to Pedowitz, et al.,[9] it is unclear why vascular tumors of the female genital tract are so rare, considering the rich vascularity of the area and cyclic variations of vascularity during the reproductive period. The majority of cervical

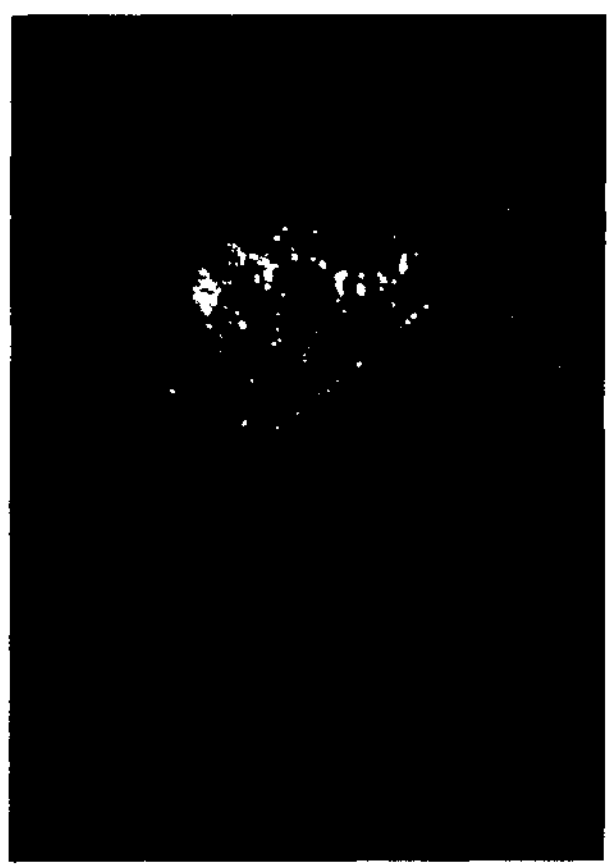

Figure 4. There is regression of the cervical cavernous hemangioma during the patient's second pregnancy 2½ years later.

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hemangiomas reported to date have been found in pregnant and multiparous women, but they have also been seen in children and nulliparous and postmenopausal women.

The behavior of a cervical hemangioma varies. Thirty-five percent of cases reported by Ahern and Allen[3] were associated with chronic cervicitis and abnormal vaginal bleeding, with menometrorrhagia and postcoital spotting being most common. Mares, et al.[10] described a 5-year-old girl who experienced profuse vaginal bleeding; management required transfusion, cervical examination under anesthesia, and excision of the vascular tumor. A less severe case was a 9-year-old girl whose cervical hemangioma was managed with vaginal application of conjugated estrogen cream.[6] Vaginal spotting stopped after 2 weeks of treatment. Estrogenization of the immature cervical epithelium could have caused the cessation of bleeding.

It is generally believed that vaginal bleeding in a newborn is caused by maternal hormonal stimulation of the infant endometrium. It is possible that an infant with vaginal bleeding has a genital tract hemangioma responsive to maternal hormones. Asymptomatic cervical hemangiomas present at birth could be too small to recognize by the unaided eye. Most hemangiomas found elsewhere on an infant during a newborn examination usually resolve within the following year. One would anticipate similar behavior of an infant's cervical hemangioma, although infants' cervices are seldom examined. To do so is neither practical nor necessary, unless vaginal bleeding is excessive or persistent. A complete workup of unusual vaginal bleeding should include examination for genital tract tumors, urinary tract infection, foreign body, sexual assault, and bleeding diathesis. If a tumor of the cervix is found in a child or preadolescent, excision or biopsy is indicated, because benign tumors of the cervix in children are less common than carcinoma.

When a cervical hemangioma is diagnosed in a pregnant or nonpregnant asymptomatic nulliparous woman, expectant management is generally favored. Vaginal delivery can be accomplished in subsequent pregnancies with Cesarean section warranted in the patient whose hemangioma increases greatly in size, obstructs or distorts the anatomy, becomes infected, ulcerates, or bleeds. The priorities of management are to conserve the architectural integrity and physiologic function of the cervix essential for fertility and parturition. If conservative management is considered too risky because of size or a tendency of the hemangioma to bleed, laser therapy can ablate the tumor with minimal bleeding or scarring. Billina, et al.[11] and Davis and Patton[12] have reported the first patients successfully managed with carbon dioxide laser.

A concentric approach directing the laser along the peripheral borders of the hemangioma to reduce blood loss can be followed by excision of the central core of the tumor using a cold knife and sutures. Rarely is hysterectomy required. Small lesions can be successfully managed with local excision, thermal cautery conization, and laser. In children the use of steroids and estrogen has been reported, but their efficacy is unknown.[13]

In light of the scarcity of reported complications from colposcopically directed biopsy during pregnancy, biopsies of colposcopic abnormalities can be performed during all trimesters of pregnancy.[14] Endocervical curettage is not done during pregnancy.[15] Anticipate brisk bleeding from a biopsy done during any stage of pregnancy. Bleeding following biopsy is manageable with pressure, ferric subsulfate solution, silver nitrate, sutures, or electrocautery. Biopsy and treatment of lesions suspected or known to be hemangiomas should take place in a facility where adequate blood replacement and surgical services are available, because of the risk of serious hemorrhage.

Summary

Hemangiomas of the uterine cervix are extremely rare. The tumor can have a variety of appearances. When a cervical hemangioma is diagnosed in an asymptomatic nulliparous woman or during pregnancy, expectant management is warranted. Surgical intervention, laser, ablation, or Cesarean section is reserved for hemangiomas that present major problems. The natural history of cervical hemangioma is regression and involution.

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