

Maternal herpes-simplex infection causing abortion

Histopathologic study of the placenta

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SUMMARY

Maternal herpes-simplex infection at or near the time of delivery has frequently been suggested as the source of infection of the newborn. However, cases of infection in the first or second trimester of pregnancy are rarely related, as well as the examination of the placenta.

In the second trimester of pregnancy an herpes-simplex maternal infection was considered as cause of abortion, by the typical placental and fetal lesions, allied to the maternal clinical history.

The histopathologic examination of the placenta is valuable as an aid in the diagnosis of certain fetal virus infections, mainly by the presence of cellular inclusions.

Neonatal systemic infection with herpes-simplex virus is commonly caused by perinatal infection, but the virus may cross the placental barrier and attain the fetus in whatever period of the antenatal life, even early in gestation (9). Microscopic examination of the placenta may be a diagnostic aid and provide information to the pathogenesis of the infection. Witzleben and Driscoll (10), in a review of the literature, pointed out that in 42 cases of generalized herpes simplex virus infection in the newborn they did not find histopathologic study of the placenta, nor have been able to find any record of destructive intrauterine lesions associated with such infection.

We have had the opportunity to study a case of abortion, where the placental and fetal lesions, allied to the clinical maternal history, could elicit the fetal death.

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METHODS

Specimens were fixed in 10% formalin. Paraffin-sections were stained with hematoxylin-eosin and by phosphotungstic Mallory hematoxylin.

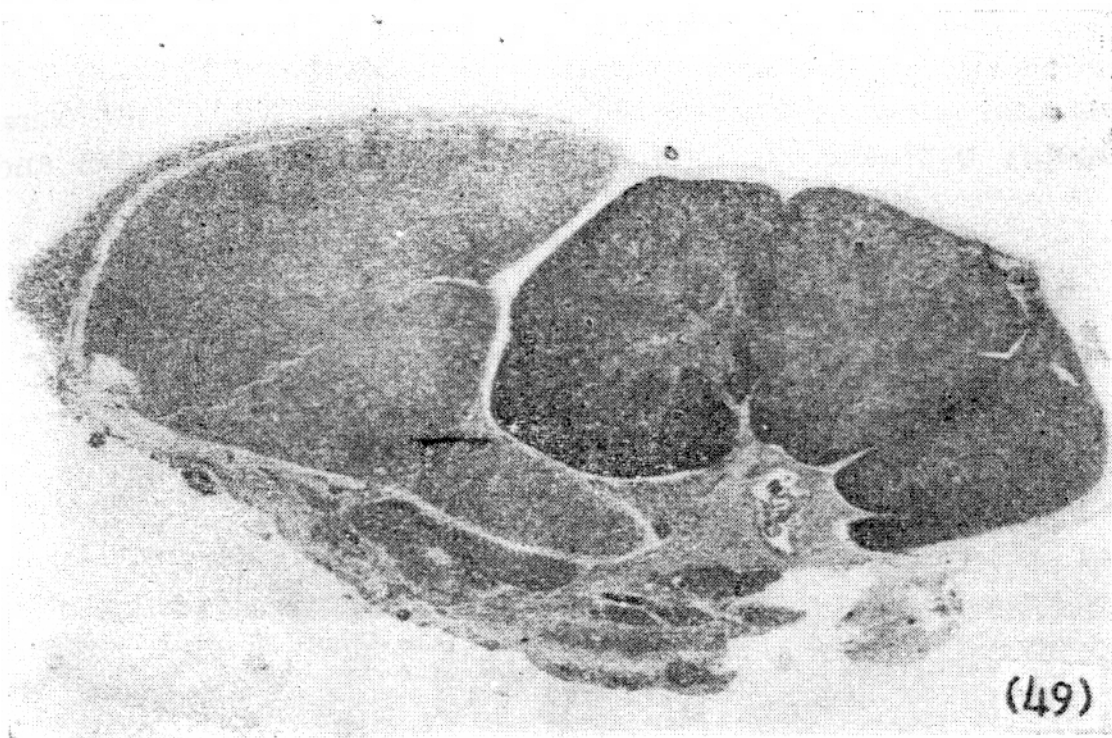
CASE REPORT

Mother aged 33, primigesta. Last menstrual period: 15/7/1965. Obstetrical examination (19/9/1965): topic pregnancy, no gynecological abnormality; good general health. After one week, an enlargement in the parotidian region was noted, without pain and fever, which subsided in a few days. Examined by an otorhinolaryngologist, a precise diagnosis could not be firmed. After some days, the patient complained of malaise and fever (38.5°C), which persisted for 15 days, in spite of the use of large spectrum antibiotics. During this time bloody vaginal discharge appeared. Concomitantly cutaneous vesicles in the feet and in the costal region were noted, accompanied by "acute amigdalitis". Herpes-simplex infection was the diagnosis of the dermatologist. Fifteen days after this episode, an obstetrical examination did not accused abnormalities. Posteriorly the patient noted that the volume of the abdomen decreased. The bloody vaginal discharge reappeared with colics, and the fetus was eliminated in 2/12/1965.

At autopsy, this was a well developed fetus, in advanced stage of maceration (total length — 16 cm), without cutaneous lesions. The internal examination showed enlargement of the liver, which exhibited grey-yellow pinpoint areas, irregularly disseminated by the parenchyma. In the brain the same type of lesion was verified. Grossly, the placenta was great, pale, friable; the fetal membranes presented whitish areas, mainly perivascular.

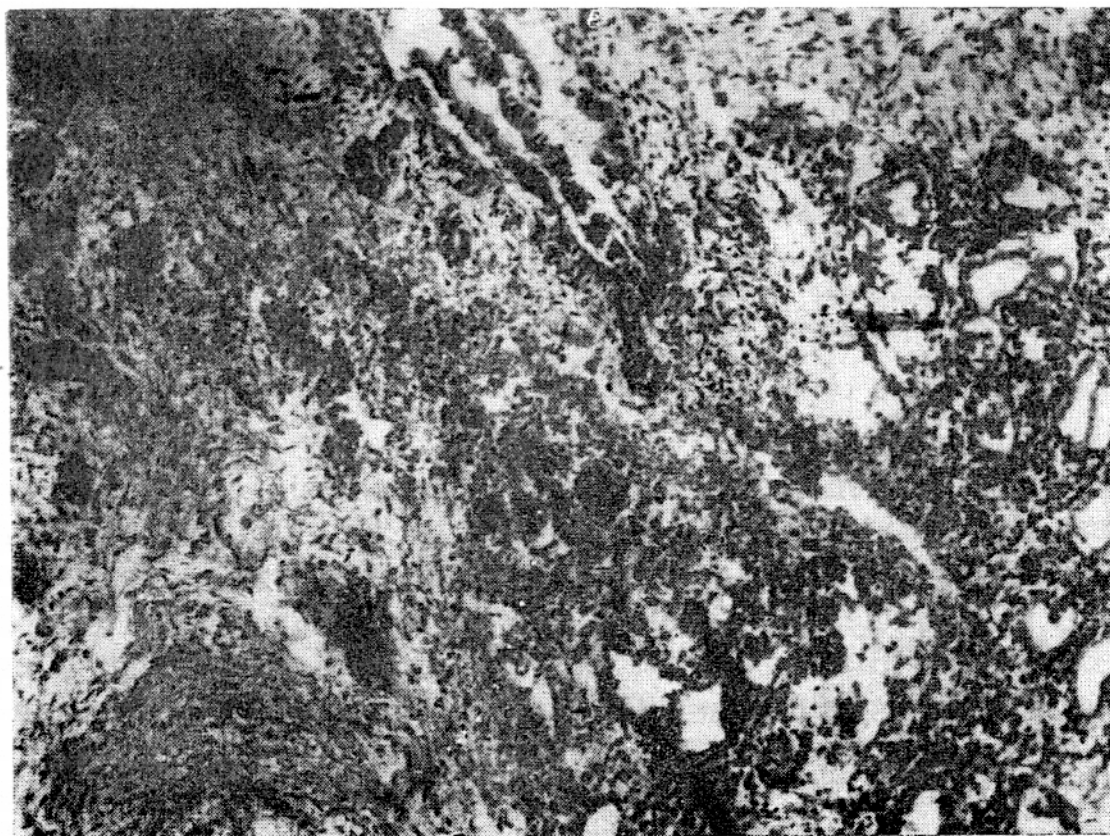
Microscopically the organs were modified by autolysis, but in the myocardium, lungs, brain, liver and adrenals, areas of necrosis were visualised, without peripheral inflammatory reaction. Intensive search did not disclose inclusion-bodies in the cells of the parenchyma. The pulmonary structure was compatible with 20 weeks of gestation (Fig. 1).

Placenta — the decidual cells presented degenerative lesions, hyperchromatism, bizarre nuclei, ballooning degeneration and giant multinucleated cells. In these and in isolated cells, intranuclear inclusions, as large, single, acidophilic homogeneous mass, with margination of the nuclear chromatin and formation of sharp halo were visualised (Fig. 2). In other cells several, eosinophilic



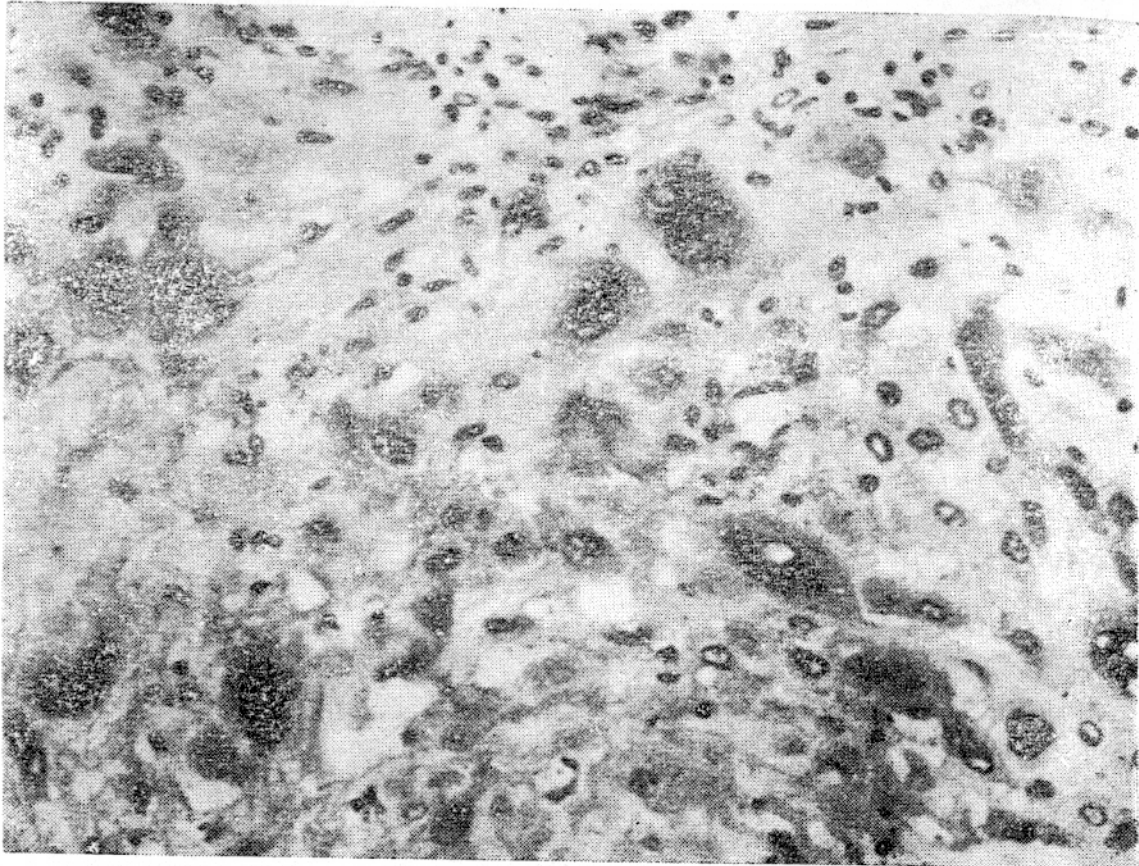
(49)

1—PHOTO — of the adrenal gland and kidney, observing, by comparison, total necrosis of all the adrenal structure.



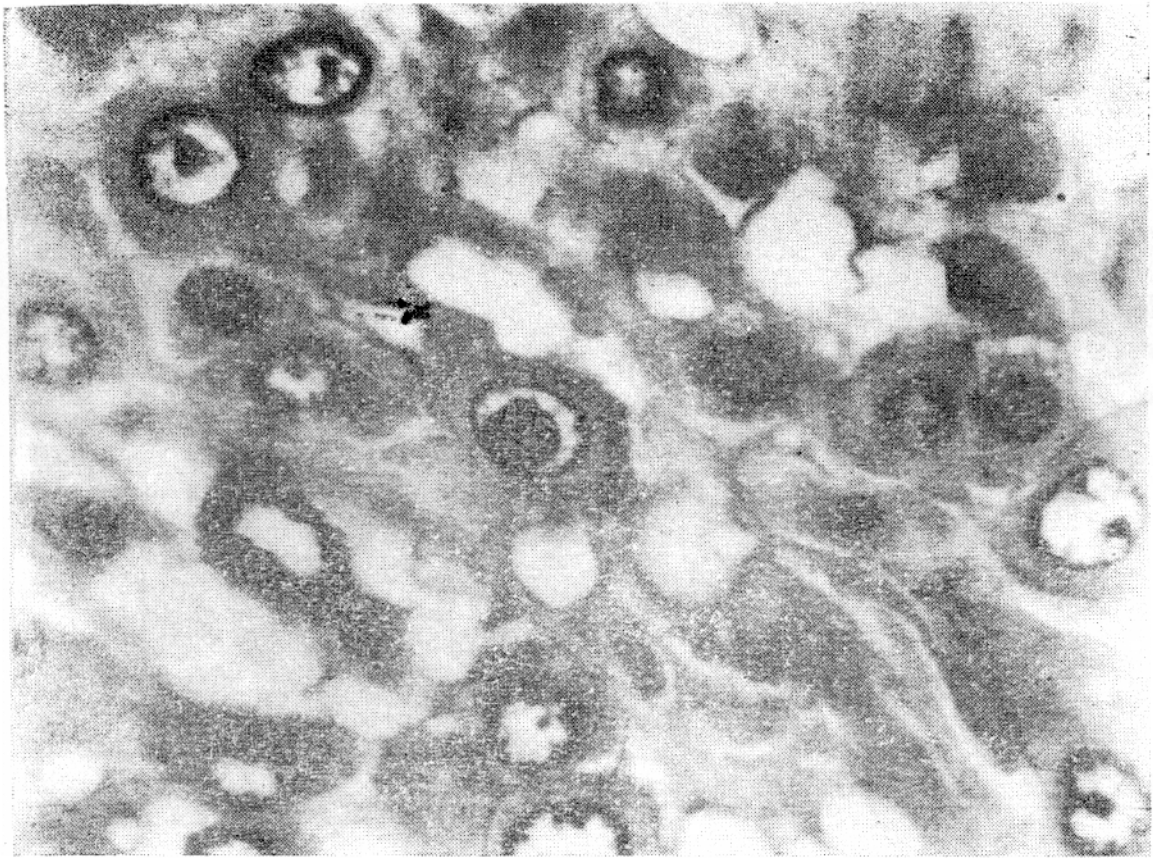
2—LUNG — some alveolar ducts and a bronchus are seen. In the middle of the photo an area of initial necrosis (H. and E. — 73 X).

granular clusters, sometimes connected by strands to the nuclear membrane, were seen (Fig. 3). The cytoplasm of decidual cells had no defined limits and no inclusions were observed on it. The local vessels had prominent endothelium, hyalinized walls and were commonly bounded by round cell infiltration (lymphocytes and

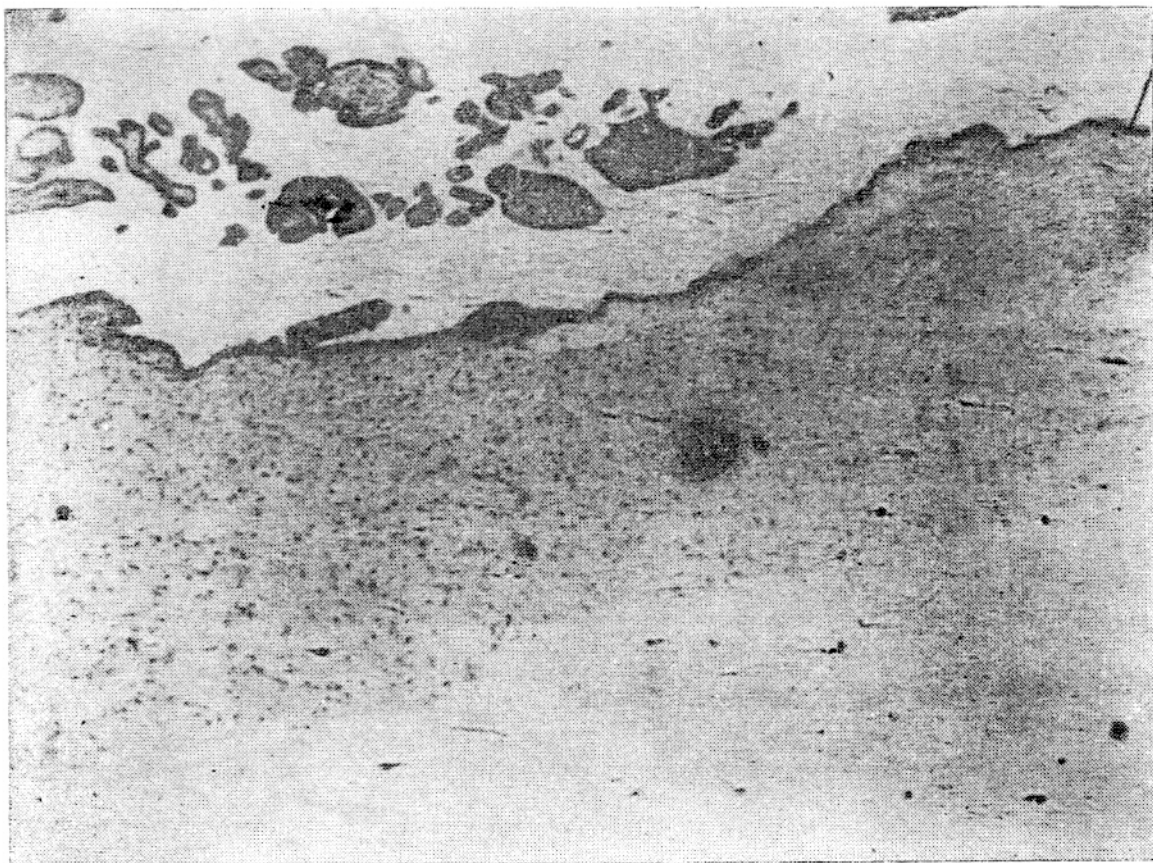


3 — DECIDUA — presence of giant-cells with nuclear inclusions; scanty round-cell infiltration (H. and E. — 320 X).

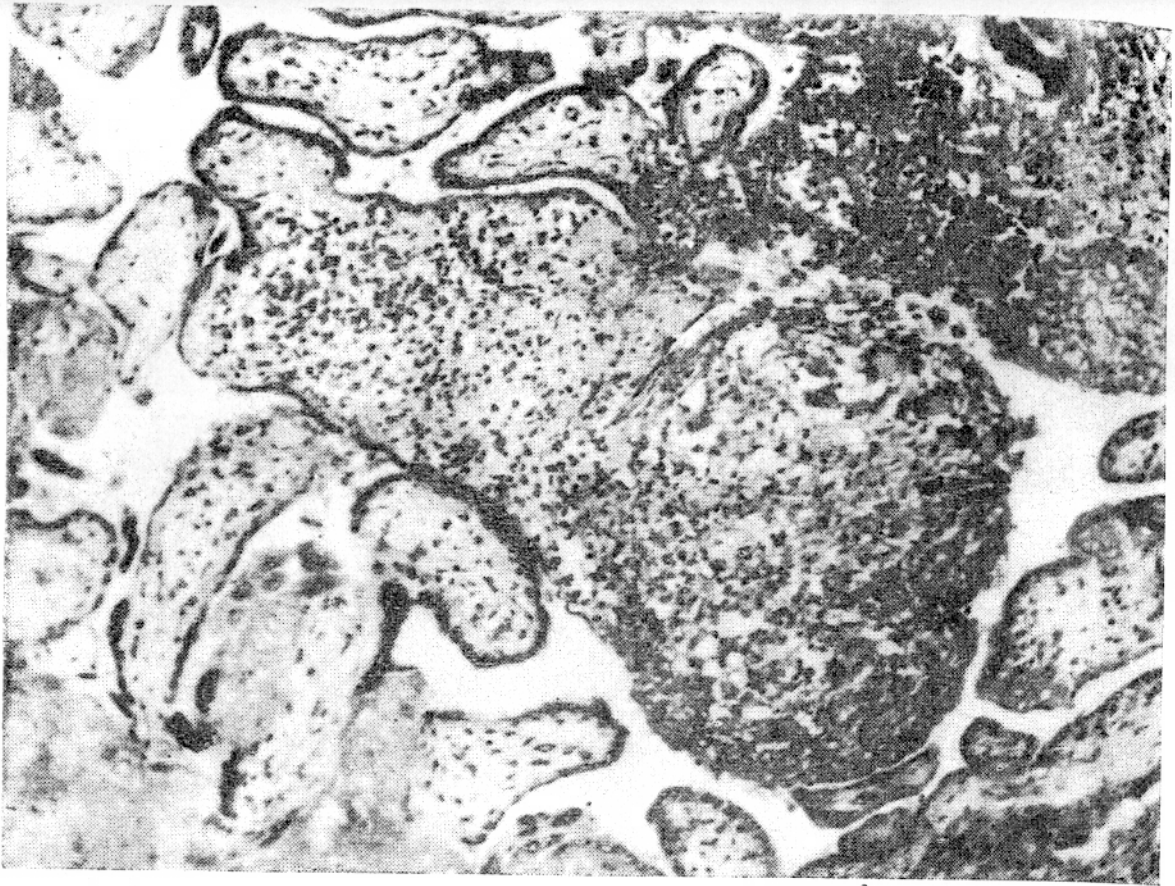
plasmocytes). Extensive areas of decidual necrosis, allied to polynuclear infiltration and nuclear fragments. Amnium and chorium were edematous, exhibiting a mononuclear infiltration (histiocytes and mononuclears), diffusely and perivascular in distribution (Fig. 4). The villi were great, irregular, a few of them showing rests of Langhans cells. The villous stroma was dense and presented abundant round-cell infiltration, with predominium of plasmocytes; epithelioid cells and gigantocytes were equally seen. The attention was focused by the presence of necrobiotic or necrotic foci in the villous vessels (Figs. 5 and 6). Occasionally group of villi, with damaged epithelium, bounded by eosinophilic material and leucocytes, were seen.



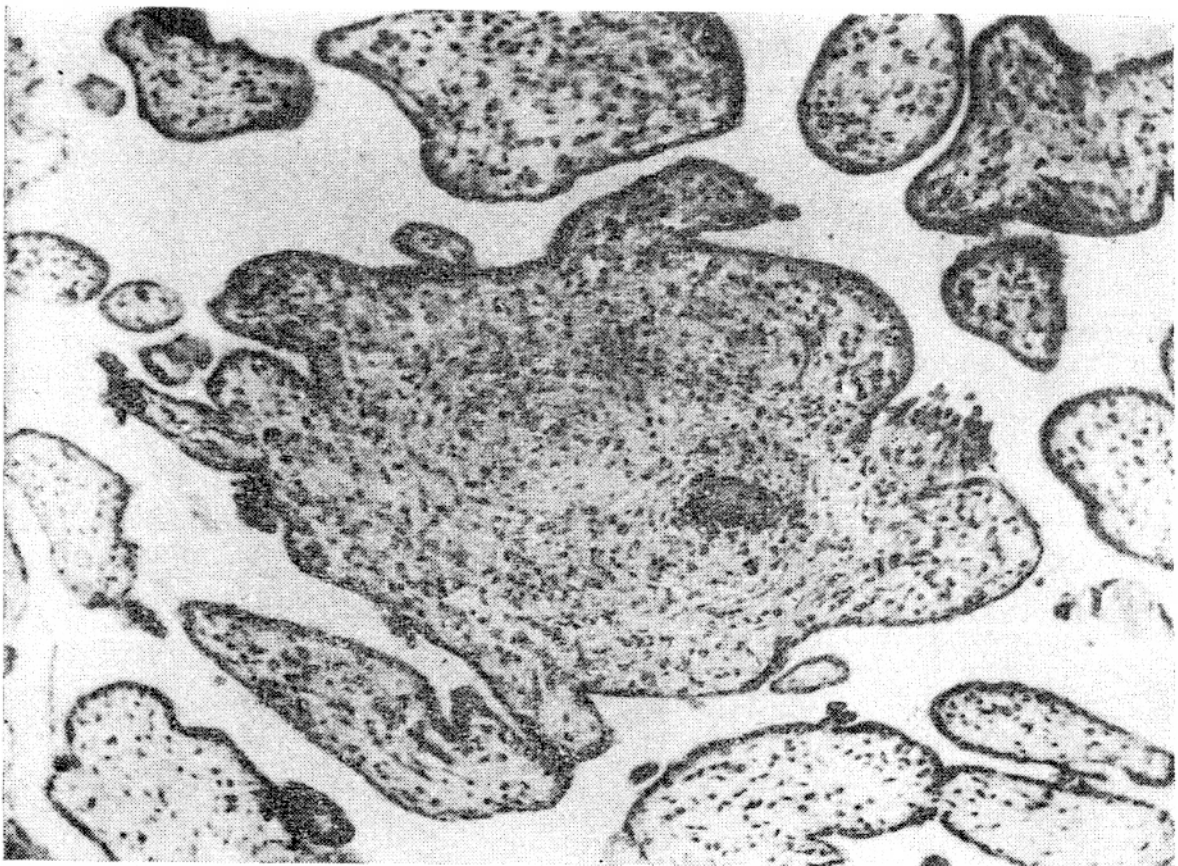
4—DECIDUA — in a local cell presence of a nuclear inclusion, connected by strands to the nuclear membrane (H. and E. — 560 X).



5—PLACENTARY CHORIUM — diffuse and perivascular cellular infiltration is observed (H. and E. — 26 X).



6 — A placental villous exhibiting in the stroma dense round-cell infiltration; in one of the extremities a group of Langhans-type giant cell is seen (H. and E. — 88 X).



7 — A placental villous with diffuse cellular infiltration and a necrotic foci in a villous vessel (H. and E. — 88 X).

DISCUSSION

Though rare, transplacental transmission of herpes-simplex virus infection has been observed (4, 5, 6). In the present case the maternal clinical history and the placental and fetal lesions could make the diagnosis plausible, though the virus isolation was not possible. In the review made by Witzleben and Driscoll (10), of 42 cases only 23 had been documented by viral recovery; in the remaining the diagnosis was based on the characteristic histologic lesions, being the most constant and striking the focal areas of necrosis in the liver and adrenal. In the present case, the adrenals were the most attained organ, where total necrosis of the parenchyma was observed, with beginning of calcium deposition. Though severely damaged, in the brain, liver, myocardium and lungs no inclusions could be observed.

The examination of the placenta and the study of maternal serum are of valious aid in the elucidation of the pathogeny of the infection in the suspected cases of virotic intrauterine infections (10). In our country virological studies generally are not viable, so the information given by the placenta are of inestimable value to the pathologist and sometimes constitute the clue to the diagnosis of the fetal death.

Hematogenous infection is suggested by the placental lesions, mainly by the villitis, but the specific cellular lesion, the nuclear inclusion, characteristic of the herpes-simplex infection, had been seen in the decidual cells. We have noted in alastrim and chicken pox the predilection of the viruses for this type of placental cell (2).

The disseminated visceral lesions present may be due to hematogenous origin, identical to that verified by Platt (7) in laboratory animals. As Bird and al. (1) suggested, the portal of entry commands the distribution of visceral lesions; in the present case, the abdominal viscera were more severely attained than the lungs, a favourable argument to the placental transmission of the infection.

This observation contradicts the relatively recent affirmative of Nahmias and al., who considered that the herpes-simplex infection in the first or second trimester of a normal pregnancy is devoid of any risk to the fetus; it seems possible that this virus may even be a cause of embryopathy (9, 3, 8).

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