

Figure 22-48 Diagrammatic representation of the various types of twin placentation and their membrane relationships. (Adapted from Gersell D, et al: Diseases of the placenta. In Kurman R (ed): Blaustein's Pathology of the Female Genital Tract. New York, Springer-Verlag, 1994.)

circulations of the twins, and in some cases these connections include one or more arteriovenous shunts. If these shunts preferentially increase blood flow to one twin at the expense of the second, one twin will be underperfused, while the second will be fluid overloaded. It is this phenomenon that constitutes the twin-twin transfusion syndrome, which if severe may result in the death of one or both fetuses.

Abnormalities of Placental Implantation

Several types of abnormal placental implantations are associated with significant complications. *Placenta previa* is a condition in which the placenta implants in the lower uterine segment or cervix, often leading to serious third-trimester bleeding. A complete placenta previa covers the internal cervical os and thus requires delivery via cesarean

section to avert placental rupture and fatal maternal hemorrhage during vaginal delivery. *Placenta accreta* is caused by partial or complete absence of the decidua, such that the placental villous tissue adheres directly to the myometrium, which leads to a failure of placental separation at birth. It is an important cause of severe, potentially life-threatening postpartum bleeding. Common predisposing factors are placenta previa (in up to 60% of cases) and history of previous cesarean section.

Placental Infections

Infections in the placenta develop by two pathways: (1) ascending infection through the birth canal and (2) hematogenous (transplacental) infection. Ascending infections are by far the most common and are virtually always bacterial; in many such instances, localized infection of the membranes produces premature rupture of membranes and preterm delivery. The amniotic fluid may be cloudy with purulent exudate, and histologically the chorion-amnion contains an infiltrate of neutrophils accompanied by edema and congestion of the vessels (Fig. 22-49A, B). The infection frequently elicits a fetal response consisting of a "vasculitis" of the umbilical and fetal chorionic plate vessels. Uncommonly, bacterial infections may result from hematogenous spread to the placenta, leading to acute villitis (Fig. 22-49C).

Several hematogenous infections, classically components of the TORCH group (*toxoplasmosis* and others [syphilis, tuberculosis, listeriosis], rubella, cytomegalovirus, herpes simplex), can affect the placenta. They give rise to chronic inflammatory cell infiltrates in the chorionic villi (chronic villitis) and are described in Chapter 10.

Preeclampsia and Eclampsia

Preeclampsia is a systemic syndrome characterized by widespread maternal endothelial dysfunction that presents during pregnancy with hypertension, edema, and

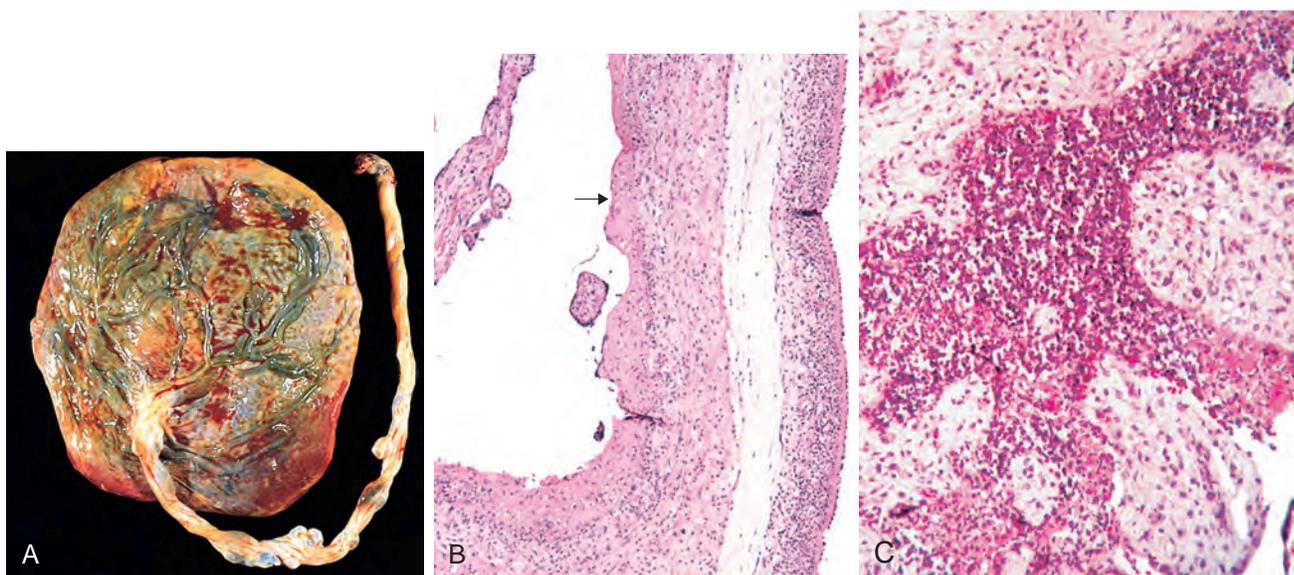


Figure 22-49 Placental infections derived from ascending and blood-borne routes. Acute chorioamnionitis. **A**, On gross examination the placenta contains greenish opaque membranes. **B**, A photomicrograph illustrates a dense bandlike inflammatory exudate on the amniotic surface (arrow). **C**, Acute necrotizing intervillitis, from a fetal-maternal infection by *Listeria*.