

## Placental Indication: Placenta Extrachorialis

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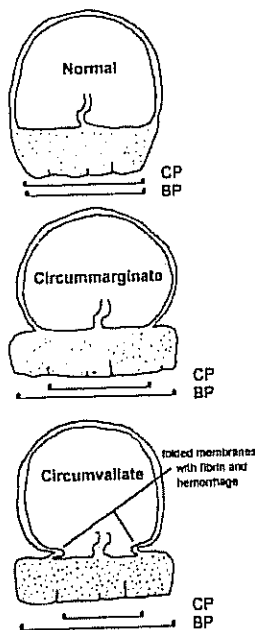
The outermost zone of the placental fetal surface, the ill-defined avascular zone at the margin of the placenta, is called the *marginal zone*. It is the transition zone of the chorionic plate, basal plate, and extraplacental membranes, with characteristics of each region. The inner margin of the marginal zone is defined as "the circumferential line connecting the points where the most peripheral branches of the chorionic plate vessels make their vertical turn into the most peripheral villous trees" (Schuler-Maloney et al, page 72). The outer margin is the grossly identifiable transition from placenta to extraplacental membranes.

In more than 90% of placentas, the marginal zone is represented by a slightly prominent opaque ring, up to 1 cm wide, known as the *subchorial closing ring*. In one study, 71% of placentas had a complete, grossly identifiable subchorial closing ring; it was incomplete in 21% and absent in the remaining 8% of placentas.

The chorionic plate typically covers the entire placental disk and the extraplacental membranes still arise from the most peripheral aspect of the chorionic plate. Consequently, the membranes grossly appear to arise at some distance inward from the outer circumference of the placental disk, leaving a rim of "naked" placental tissue projecting beyond the limits of the chorionic plate. Hence, there is *extra* placental tissue beyond the chorionic plate, *placenta extrachorialis*.

There are two types of placenta extrachorialis: circummarginate and circumvallate. A circummarginate placenta shows a "normal" flat transition from the amnion and chorion of the chorionic plate to the amnion and chorion of the extraplacental membranes. The "insertion" of the extraplacental membranes appears normal, just at a distance inward from the outer circumference of the placental disk. There is no folding nor rolling of the chorion, and there is minimal fibrin and no recent nor old hemorrhage.

CP = Chorionic plate  
BP = Basal plate



On a circumvallate placenta (vallate = surrounded by a wall or elevation, cupped), the transition zone from fetal surface to extraplacental membranes appears as a raised ring due to the folding or rolling of the chorion associated with a variable amount of fibrin and recent and/or old hemorrhage. The amnion may be incorporated into the folding or, most commonly, it lies flatly over the folded chorion without being infolded. Microscopically, this folded area contains amnion, chorion, fibrin, hemorrhage, decidua, and senescent villi.

About 25% of placentas show partial or complete extrachorialis. Circummarginate and circumvallate insertion may be present in the same placenta. The width of the parenchyma that extends beyond the chorionic plate may vary from 1 cm to greater than 10 cm. In addition, these placentas are usually thick.

The etiology of placenta extrachorialis and the true relationship between circummarginate and circumvallate placental configurations are unknown. Researchers have suggested abnormal implantation (too shallow or too deep), uncoordinated

placental and uterine growth, marginal separation of the placenta with hemorrhage, oligohydramnios, cigarette smoking, pre-eclampsia, and eclampsia. Some of these conditions may cause decreased uteroplacental blood flow, particularly to the placental margin, with subsequent decidual necrosis and abnormal placental growth. In cases of oligohydramnios, reduced amniotic fluid pressure may result in decreased distention of the gestational sac, causing the chorion to fold in.

The circummarginate placenta has no clinical significance. In fact, the circummarginate configuration is considered by some to be a broad/prominent subchorial closing ring.

Although some authors consider circumvallation to be a clinically meaningless variation of normal, others have observed that in late gestation, complete circumvallate placentation is associated with increased incidence of threatened abortion, antepartum hemorrhage, premature labor, abruptio placentae, and early prolonged oligohydramnios. Circumvallate placentas are rarely found during the first trimester. Mothers are at risk for higher morbidity due to increased likelihood of postpartum hemorrhage and the need for manual removal of the placenta. The fetus is at slight risk for growth retardation.

### References

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2. Joshi VV: Handbook of Placental Pathology; 1994, Igaku-Shoin.
3. Schuler-Maloney D, Lee S: The Placenta: To Know Me Is To Love Me. A reference guide for gross placental examination; 1998, DSM PathWorks, Inc., St. Mary's, IA; <http://showcase.netins.net/web/placenta>.