

# HISTOPATHOLOGY OF PLACENTA IN PREGNANCY ANAEMIA

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## Introduction

Anaemia is the commonest medical disorder in pregnancy. Few inconsistent reports have appeared in the literature on histopathology of placenta in pregnancy anaemia. Tominage and Page (1966) found vasodilatation of small tertiary vessels and clustering of syncytial nuclei in placental hypoxia. Beischer *et al* (1970) reported significant placental hypertrophy in maternal anaemia. Mathews *et al* (1973) did not observe any abnormality in mild or moderate degree of anaemia. Agbola (1975) reported significant increase in villous fibrosis in placenta from anaemic mothers. Khanna *et al* (1979) observed altered villous vascularity and increased incidence of endarteritis obliterans. Similar findings have also been reported by Murthy *et al* (1976) and Khanna *et al*

(1977) in maternal malnutrition. The purpose of this report is to study histopathological changes in placenta and possible relationship between placental changes and various grades of pregnancy anaemia.

## Material and Method

The present study was conducted on 80 placentae selected at random from the mothers delivered at P.B.M. group of Hospitals, Bikaner. Twenty-five placentae belonged to healthy mothers. All the cases were divided into 4 groups depending upon the haemoglobin level (Sahli's method) as

- group I 6 gm% and below (15 cases)
- group II 6.1-8.5 gm% (15 cases)
- group III 8.6-10.9 gm% (25 cases)
- group IV 11.0 -and above (25 cases)

served as control

The placentae were trimmed and fixed in 10% formal saline for 48 hours. Eight to ten pieces were taken from each placenta in the form of 'S' shape. Slides were stained with H. & E. stain and examined with special reference to villous vascularity, endarteritis obliterans, villous stromal fibrosis, calcification,

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fibrinoid necrosis, syncytial knots and vasculosyncytial membranes.

#### Observations and Discussion

The groupwise distribution of cases, histopathological findings and statistical evaluation are depicted in Table 1.

found that vascularity was diminished in 30% cases, but also increased in 30% cases. Agboola (1975), however did not notice any significant alteration in vascularity.

Endarteritis obliterans was seen in anaemic placentae more frequently than

TABLE I  
Showing Histopathological Findings of Placentae in Pregnancy Anaemia

S. No.	Histological Features	Maternal Haemoglobin (Gm%)			
		6.00 and below I(15 cases)	6.1-8.5 II(15 cases)	8.6-10.9 III(25 cases)	11.0 and above IV(25 cases)
1.	Villous Vascularity				
	Normal	6 (40)**	9(60)*	18(72)	23(92)
	Decreased	6 (40)**	4(26.67)*	4(16)*	0(nil)
	Increased	3 (20)	2(13.33)	3(12)	2(8)
2.	Endarteritis				
	Obliterans	9 (60)**	6(40)*	6(24)	3(12)
3.	Villous stromal fibrosis	9 (60)	7(46.67)	8(32)	9(36)
4.	Calcification	0 (nil)	9(60)	20(80)	21(84)
		Number per Hundred VILLI $\pm$ S.D.			
5.	Fibrinoid necrosis	6.67 $\pm$ 5.28	6.67 $\pm$ 5.64	8.00 $\pm$ 6.89**	7.15 $\pm$ 4.65
6.	Syncytial knots	35.60 $\pm$ 6.86**	25.80 $\pm$ 5.45**	20.04 $\pm$ 6.89**	13.00 $\pm$ 5.51
7.	Vasculosyncytial membrane	5.40 $\pm$ 4.23	5.00 $\pm$ 4.56	6.64 $\pm$ 2.35	7.92 $\pm$ 4.68

\*\*—Highly significant ( $p < 0.001$ ) as compared to control.

\*—Significant ( $p < 0.05$ ) as compared to control.

Others—not significant ( $p > 0.05$ ) as compared to control.

Villous vascularity revealed alteration in maternal anaemia, more marked in severely anaemic mothers. As compared to control placentae, vascularity was decreased in all the anaemic groups and the difference was statistically significant. Increased vascularity was not observed in anaemic cases when compared to control, which may be due to poor and infrequent compensatory capacity of our cases. Laga *et al* (1972) also reported 38% diminution in capillary surface in poor socio-economic group. Khanna (1979)

control placentae. The difference was significant statistically and increased with increasing severity of anaemia. Khanna *et al* (1979) observed similar results. It is suggested that endarteritis obliterans may reflect response to placental hypoxia.

Calcification was observed in mildly and moderately anaemic placentae as frequently as control placentae. Absence of calcification in severely anaemic placentae is an interesting observation. The difference is statistically significant but its

mechanism is not clear. Reduced calcification in severely anaemic placentae has also been reported by Khanna *et al* (1979).

Highly significant increase in syncytial knots has been observed in all anaemic groups as compared to control. The results are in agreement with those of Khanna *et al* (1977, 1979).

No significant alterations in villous stromal fibrosis, fibrinoid necrosis and vasculosyncytial membranes have been observed in the present study. Previous workers (Agboola, 1975), Khanna *et al* (1977, 1979) also reported similar results.

#### Summary

Fifty-five placentae from anaemic mothers having haemoglobin levels below 10.9 gm% and 25 non-anaemic mothers having 11.0 gm% or more haemoglobin were studied and compared. Significant alteration in villous vascu-

larity, increased endarteritis obliterans, increased syncytial knots and decreased calcification have been observed in anaemic placentae.

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