Research Article

A Comparative Study of Histopathological changes of Normal Placenta with Placenta of Preeclampsia at Term

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ABSTRACT

According to BENIRSCHKE, placenta considered as the mirror of fetus. Fetus ability to grow and prosper in uterus is a function of placental surface area available for exchange of respiratory gases and nutrients.(Bonds et al 1984).Placenta is affected structurally and functionally in preeclampsia. Any changes in placenta reflect, the fetal outcome. 100 placentas were studied,50 of preeclampsia and 50 of normal pregnancy at term in Veer Surendra Sai Medical College and Hospital, from August 2011 to August 2012.The placentas were collected from labour room and O.T. Recquisite permission was taken from the hospital authority. Clots were drained, cord trimed ,the weight of placenta was taken. The macroscopic changes infarction and calcification were detected. Then the placenta was preserved in formalin ,sent for histopathological study.In histopathological features were studied by light microscope. On histopathological study,compare to normal placenta infarction, calcification, cytotrophoblastic proliferation,calcification,stromal fibrosis,sycytial knotting,thickening of basement membrane were predominantly seen in preeclampsia. The increased histopathological changes in preeclampsia compared to normal pregnancy adversely affect the fetal outcome.Early detection and control of blood pressure reduce the adverse effect.

Keywords: cytotrophoblastic proliferation "stromal fibros, sycytial knotting "thickening of basement membrane

INTRODUCTON

Placenta is the most accurate record of infant's prenatal experiences .According to BENIRSCHKE, ¹placenta considered as the mirror of fetus .Fetus ability to grow and prosper in uterus is а function of placental surface area available for exchange of respiratory and nutrients.(Bonds et al 1984). gases Placenta is affected structurally and

functionally in preeclampsia .Any changes in placenta reflect ,the fetal outcome.

OBJECTIVE:

The objective of our study is to see the histological changes of the placenta in normal pregnancy and in cases of preeclampsia.

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MATERIAL AND METHOD:

were studied. 50 of 100 placentas preeclampsia and 50 of normal at term in Veer Surendra pregnancy Sai Medical College and Hospital, from 2011 to August August 2012. The placentas were collected from labour room and O.T. Recquisite permission was taken from the hospital authority. Clots were drained, cord trimed, the weight of placenta was taken.The macroscopic changes infarction and calcification detected.Then the were placenta was preserved in formalin, sent for histopathological study.In histopathology multiple (6-8) whole thickness sections were processed and stained with H&E,P.A.S Stain.Histopathological features were studied by light microscope.

RESULT

On histopathological study,compare to normal placenta infarction²,calcification, cytotrophoblastic proliferation, calcification, stromal fibrosis³,sycytial knotting,thickening of basement membrane were predominantly seen in preeclampsia

Table 1:Microscopic changes of placenta in cases of Preeclampsia & normal

Microscopic	Normal	Preeclampsia	P value		
Finding	No(%)	No(%)			
1.Cytotrophoblastic proliferation					
<40%	4(8)	43(86)			
>40%	-	7(14)			
2.Thickening of basement memrane					
<3%	49(98)	2(4)	significant		
>3%	1(2)	48(96)			
Fibrinoid necrosis					
<3%	47(94)	36(72)	significant		
>3%	3(6)	14(28)			
Syncytial knoting					
<30%	49(98)	12(24)	significant		
>30%	1(2)	38(76)			
Stomal Fibrosis					
<3%	49(98)	38(76)	significant		
>3%	1(2)	12(24)			

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Table2:Macroscopic changes of placenta in cases of Preeclampsia & normal

Macroscoping Finding	Normal Placenta No(%)	Preeclamptic Placenta No(%)	P VALUE		
Infarction					
Present	8(16)	48(96)	significant		
Absent	42(84)	2(4)			
Calcification					
Present	10(20)	42(84)	significant		
Absent	40(80)	8(16)			
Weight(gms)					
<450	7(14)	42(84)	significant		
>450	43(86)	8(16)			



Fig1a: obliterative endarteritis



Fig1c:Stromal fibrosis



Fig1b: cytotrophoblasti proliferation



Fig1d:Calcification



Fig2.Gross photograph of normal placenta(left) and eclamptic placenta(right)

DISCUSION

The weight of placenta in preeclampsia cases was less than normal cases. Placental weight, <450gms in 84% of preeclampsia and 14% of normal pregnancy. This result confirmed the study of Laura and Kara(1989), Dutta et al (1989), Dutta et al (1996). Infarctions were more common in Preeclampsia. The incidence of infarction was 96% of preeclampsia and 8% of normapregnancy, which was similar to the results of Salvatore et al (1968),Bartholomew and Colvin (1938), Fox (1968), K.R. Damaria, V.S.Salvi and S.N. Daftari et al(1989). Calcification was more prevalent in preeclampsia in the present study which correlated with the result of Dutta et al (1989), Kher and Zawar (1981).Proliferative activity of the trophoblast denoted the response to uteroplacental ischemia (Wigglse worth 1962, other workers had also noted cytotrophoblastic proliferation (> 40%) in association with hypertensive complication of pregnancy (Buckshee, K.Malkani Khatri 1974), Narasimha A et al (2011), Majumdar S et al(2005)⁴. They indicated intensity of trophoblastic that the prolifierative activity serves as a rough guide to the severity and duration of ischemia. This accounts for intrauterine hypoxia and still birth (Fox 1978). The present study showed the similar results in which cytotrophoblastic proliferation (> 40%) was significantly high in preeclampsia (86%).In the present study the placenta showed thickening of basement membrane in more than 3% of villous population were very high in preeclampsia (96%). This was very close to the results of kher and Zawar (1981). Sayeed, Devi P.K. and Chakravarty et al (1976) showed that syncytial knotting of more than 30% is present in placenta of preeclampsia. The present study was similar with the results of the above mentioned

authors which show that syncytial knotting of more than 30% is present in 70% of placenta of preeclampsia. The present study showed that the placental thickness was reduced in preeclampsia. Kher et al (1981) found increased fibrinoid necrosis and stromal fibrosis compared to normal which support my study.

CONCLUSION

The increased histopathological changes in preeclampsia compared to normal pregnancy adversely affect the fetal outcome.Early detection and control of blood pressure reduce the adverse effect.

Abbreviation:

1.O.T: Operation Theatre
 2.H&E: Haemotoxylin and Eosin
 3. Paraamino salisilic acid

REFERENCE:

1. Kher A.V. Zawar M.P. Study of placental pathology in toxaemia of pregnancy and fetal implication. Ind Jornal Patho & Microbiol.1981; 24: 245-251.

2. Fox H . The significance of placental infarction in perinatal mortality and morbidity. Biologia neonatorum.1967; 11: 87.

3. Fox H. Fibrinoid necrosis of plancental vill. Jornal Obst & Gyn Brit.1968;7 5; 448.

4. Majumdar S. Dasgupta H. Bhartacharaya K. A Study of Placenta In Normal And Hypertensive Pregnancies. J.A nat.Soc. India.2005; 54(2): 1-9.