



A Clinicopathological Study of Placenta in Health and Maternal Diseases

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Abstract

Background: *Our Aim was to study the frequency of maternal diseases along with gross and microscopic findings in placenta of normal term pregnancy & also pregnancy with complications*

Methods: *A two years prospective study of all the placenta received was sent for histopathological examination, where sections from membrane, umbilical cord & serial section from placental cotyledon were processed which were stained with Hematoxylin and Eosin stain for routine purpose. Special stains like PAS and Masson's trichrome were used whenever indicated.*

Result: *The most common risk factor is hypertension 31/143 (21.08%) followed by fever 20/143 (13.9%), diabetes 5/143 (3.4%), Infectious causes like varicella, hepatitis HIV, VDRL were observed. Among the HIV positive cases, chorioamnionitis is present in 100% cases, deciduitis in 75%, perivillous fibrin 75% and calcification in 25% cases. In pregnancies with poor foetal outcome of which the most common is IUGR 39/143 (27.3%), followed by IUFD and still births 30/143 (21.6%).*

Conclusion: *Most common pregnancy related risk factor was hypertension, followed by maternal fever. The histological lesions in descending order were Chorioamnionitis 17 out of 30 cases (56.6%), infarct 11 out of 30 cases (36.6%), deciduitis 10 out of 30 cases (33.3%), fibrinoid necrosis 9 out of 30 cases (30%), funisitis 7 out of 30 (23.3%) also present were Inflammation of membrane, cord and decidua which led to uteroplacental insufficiency and poor pregnancy outcome. Examination of placenta is essential for the histological diagnosis of the disease which may not be suspected by the obstetrician*

Keywords: *Placenta, histopathology, foetus, hematoxylin.*

Introduction

Placenta is the term derived from Latin word that translates as "FLAT CAKE".

It is site at which mother and foetus interface. Therefore maternal or foetal disorders can affect placenta. Conversely any placental anomaly can affect maternal and foetal health. Examination of placenta is useful to evaluate the aetiology associated with an adverse pregnancy outcome, the formulation of a plan of management for

future pregnancies, the capability to predict the risk for long-term neonatal neurodevelopment problems, and medical-legal risk assessment of an adverse pregnancy outcome.¹ The placenta provides oxygen and nutrients to the foetus, and removes carbon dioxide and other waste products. It protects the foetus against certain xenobiotic molecules, infections and maternal diseases. It metabolises a number of substances and can release metabolic products into maternal and

foetal circulations. In addition, it produces different hormones that are released in both the maternal and foetal circulations affecting pregnancy, metabolism, foetal growth, parturition and other functions. Many changes occur in the placenta during gestation that helps to maintain the demand and supply balance of oxygen and nutrients to the foetus. During intrauterine life foetus, membranes, umbilical cord and placenta form an organic whole. Disease of any of these parts have effect on other ².

The interest in placental pathology has increased due to Infertility, delayed child bearing, and unexpected outcome of pregnancy. Those affected individuals want an explanation and assessment of the outcome of future pregnancy and its risk. The examination of placenta both macroscopically and microscopically can show changes that may help in the immediate and later management of both mother and infant.

Materials and Methods

The present study is two years prospective study conducted in the Department of Pathology of a tertiary care hospital. All the placenta were received in the Department of Pathology after proper documentation. Histopathological number was given. All the relevant clinical details like age, parity, obstetric history, medical history, physical examination, radiological examination were noted. All the related foetal and placental risk factors were analyzed and documented. The placenta disc was examined, all the dimensions of the disc were noted foetal and maternal surface is examined for any abnormality or lesions. The membranes are trimmed and the cord is separated and disc weight are noted. The cord is examined for length, insertion and other abnormality. The membranes are examined for colour, transparency, insertion. Serial section were taken at 0.5-1 cm intervals leaving the foetal tissue and the parenchyma was examined for fibrin, infarcts and calcifications. Then the placenta is subjected to fixation and section for histopathological examination were taken next day. Two rolls of

membranes including the rupture site were submitted. Section from cord was submitted. Two section of the placental disc from the central part were submitted. More sections were taken if any gross abnormality was noted. In twin placenta 'T' zone sections were taken for histological examination. Hematoxylin and Eosin stain was used for routine purpose. Special stains like PAS and Masson's trichrome were used whenever indicated.

Result

Age wise, Majority of the mothers were in the age group of 21-30 years 103/143 (72.0%). None of them was above 40 or below 15. The maternal risk factors associated with pregnancy. The most common risk factor is hypertension 31/143 (21.08%) followed by fever 20/143 (13.9%), oligohydraminos 8/143 (5.4%), diabetes 5/143 (3.4%), APH 6/143 (4.08%) Infectious causes like varicella, hepatitis HIV, VDRL were observed. Cases with maternal cardiac diseases 3/143 (2.04%) were observed. Lesions of placenta in full term asymptomatic cases were found as calcification in (26%) cases, perivillous fibrin (23%), increased syncytial knots in (13%), infarct (10%) cases. Placental lesions in hypertensive pregnancies were increased syncytial knots in 87% cases, cytotrophoblastic hyperplasia in 25%, fibrinoid necrosis in 22%, infarct 42%, calcification 22%, MCVP 10%, chorioamnionitis in 74%. Placental lesions in oligohydraminos were increased syncytial knots in 75%, deciduitis in 50%, perivillous fibrin in 50%, infarct in 25%, fibrinoid necrosis 38% and chorioamnionitis in 50% cases. Placental lesions in diabetes were studied and observed as thick basement membrane in 60%, increased syncytial knots in 100%, perivillous fibrin 60%, and chorangiomas in 40% and fibrinoid necrosis in 20%. Among the HIV positive cases, chorioamnionitis is present in 100% cases, deciduitis in 75%, perivillous fibrin 75% and calcification in 25% cases. Among the fever cases, increased syncytial knots seen in 24%, deciduitis 81%, perivillous fibrin 33%,

calcification 33%, chorioamnionitis 43%, infarct 5%, villitis 5% cases. We also studied pregnancies with poor foetal outcome. The most common is IUGR 39/143 (27.3%), followed by IUFD and still births 30/143 (21.6%). Preterm deliveries were 23/143(16%), twin pregnancies seen were 7/143 (4.9%). Babies with congenital anomaly were 6/143(4.2%). One case of triplet pregnancy also seen 1/143(0.7%) and post term delivery 4/143 (2.79%). The most common maternal risk factor associated with IUGR is Hypertension in 12/39 cases (30.76%) and least common cases are of PROM, APH, RVD ,HEV (2.5%). Microscopic lesions associated with IUGR were deciduitis being the most common 25/39 (64.10%), followed by chorioamnionitis 20/39 (51.2%), perivillous

fibrin, calcification were seen in 14/39 cases (35.89%). The least common lesion seen is chorangioma 1/39 (2.6%). The most common maternal risk factors associated with still births and IUFD are hypertension 14/ 30(46.6%) and least common were RVD, BOH, Rh incompatibility, varicella infection 1/30 (3.3%). The commonest histological lesions associated with IUFD and still births seen are chorioamnionitis 17/30 (56.6%), infarct 11/30 cases (36.6%), deciduitis 10/30 (33.3%), perivillous fibrin 9/30 (30.0%), fibrinoid necrosis of villi 9/30 (30.0 %), calcification 4/30 (13.3%) and Least common is single umbilical artery 1/30(3.3%).



Fig 1: Gross photograph of monochorionic diamniotic placenta with inter veining membrane

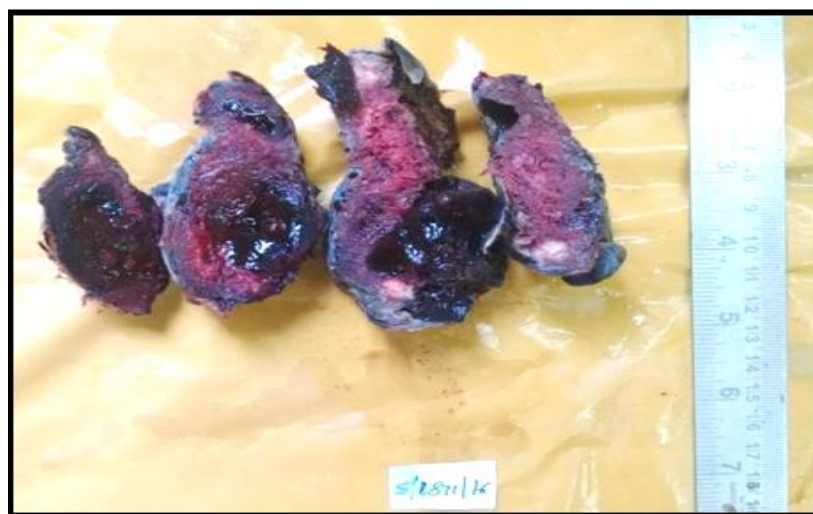


Fig 2 : Gross photograph of retroplacental hematoma

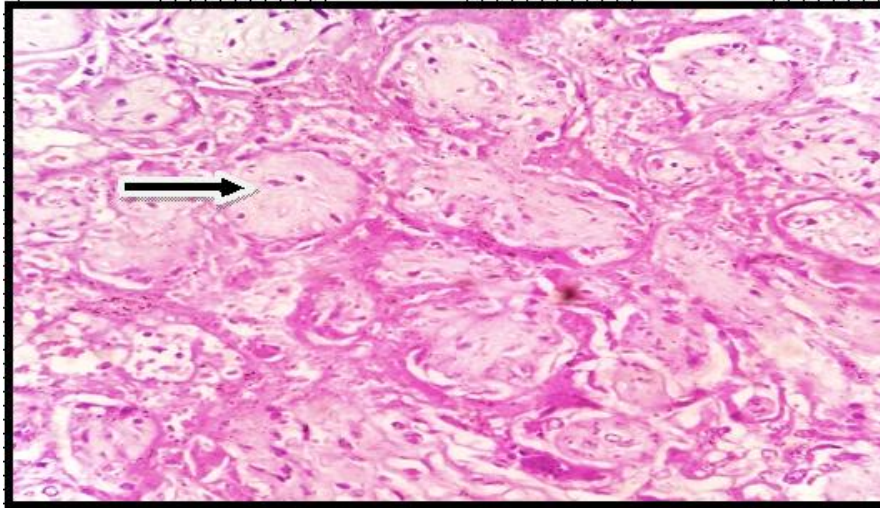


Fig 3: Microphotograph showing fibrinoid necrosis of villi



Fig 4: Gross photograph of chorangioma, cut surface yellowish brown. no areas of haemorrhage or necrosis seen

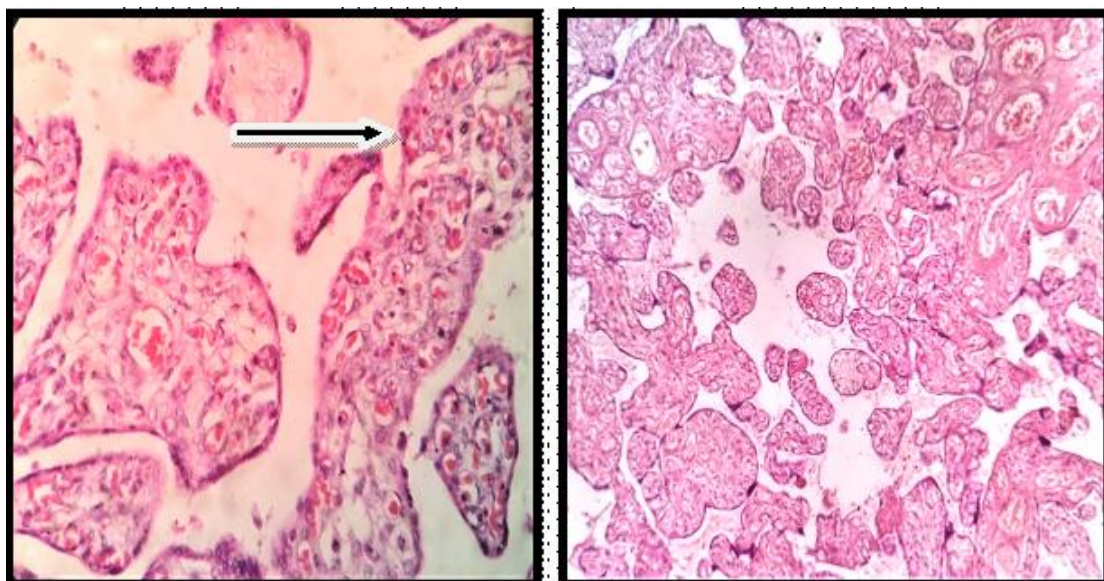


Fig 5: Microphotograph showing chorangioma more than 10 vessels in more than 10 villi (HE 10x) right and (HE 40x) left showing >10 vessels

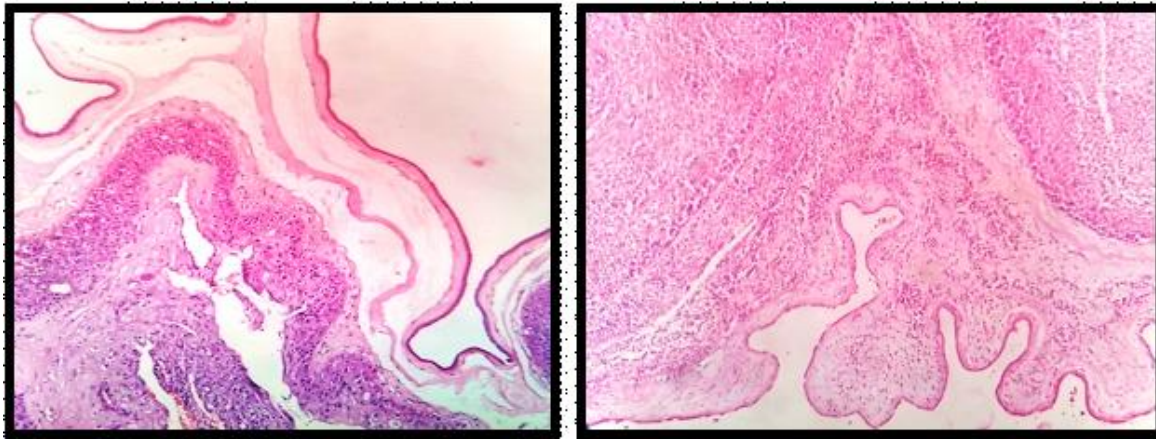


Fig 6: Microphotograph chorioamnionitis (HE 40x) right (stage I) and (stage II) (HE 40x) Left

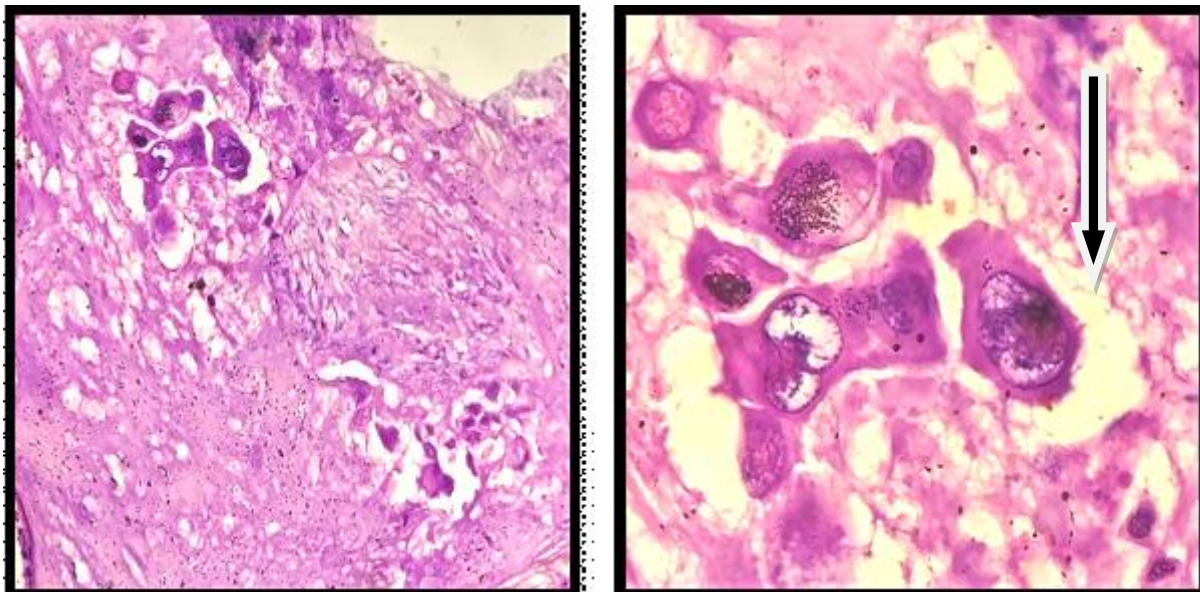


Fig 7: Microphotograph showing CMV deciduitis. The cell are markedly enlarged as compared to other decidual cells and shows inclusionsH(HE 20x) right and (HE 40x) left

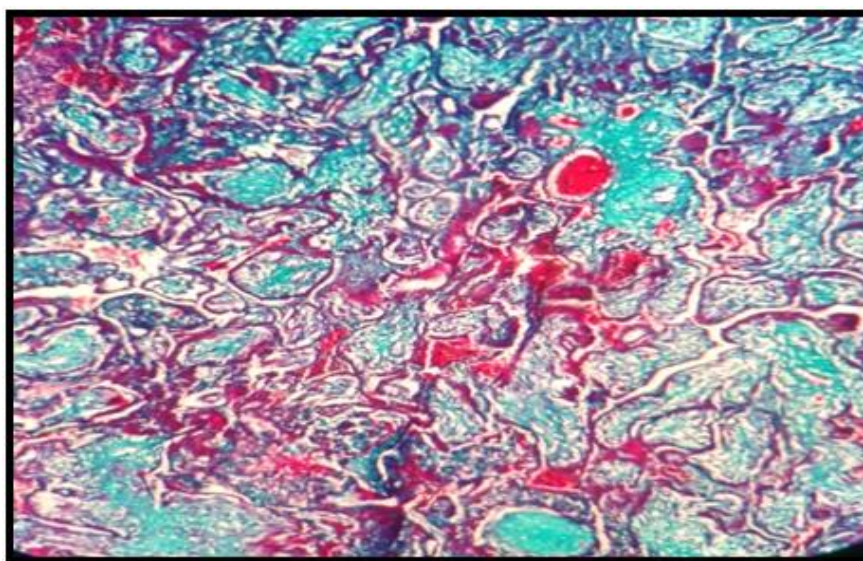


Fig 8: Microphotograph showing increased perivillous fibrin and stromal fibrosis, stained green which is due to increased collagen (40x Masson's Trichrome)

Discussion

This study was carried out at the tertiary care hospital.146 placentas were studied from 143 mothers.

Gross examination of the placentas in hypertensive pregnancies showed decreased placental weight (274 g) and diameter, marginal insertion of the cord, retroplacental hematoma, infarcts. The severity of findings were increased

with increase in severity of the disease. Microscopic lesion observed in our study were increased syncytial knots, cytotrophoblastic hyperplasia, infarcts, increased perivillous fibrin, increased calcification, fibrinoid necrosis of the villi, medial coat proliferation of vessels.

The findings correlate to that of the study performed by Majumdar S et al (2005)³ and Kurdukar et al (2007)⁴

Table: Comparative Study of Gross Features in PIH

	Majumdar S et al. (2005)	Kurdukar et al (2007)	Present study
Mean placental weight	Normal group-485.5g and PIH 399g.Plscental weight decreased in PIH	In normal group 475 g and in mild 423.4g, in severe 90.2, eclampsia 364.	In normal group 513 g and in PIH it is 274 g and in eclampsia it is 140g.
Mean foetal weight	Normal group 2800g while in PIH 2040g	Normal group 2800 g and in mild PIH 2460g,severe 1960g and eclampsia 1740g.	Normal group 2935 g and in PIH it is 1109 g,in eclampsia it is 782g.
Marginal insertion of the cord (in percentage)	Normal group 5.2 and in PIH group 20	-	Normal group 5.8 and in PIH group 11
Retroplacental hematoma	-	mild PIH, 2 out of 23 i.e 8.69 %, in severe 2 out of 16 i.e 12.5 %, eclampsia 2 out of 10 i.e 20 %. Retroplacental	Mild PIH 2/31 cases i.e 6.45% and in eclampsia 3/31 9.6%

Table: Comparative Study of Microscopic Features in PIH

	Majumdar S et al. (2005)	Kurdukar et al(2007)	Present study
Syncytial knots	Significant increase seen 27 %	8% in severe PIH and 100% in eclampsia	87% in PIH and 100% in eclampsia
Placental Infarcts	hypertensive group shows significant increase i.e16.5%	Mild PIH 3/23 13% ,severe PIH 7/16 43.7%,eclampsia 4/10 40% cases	13/31 cases showed areas of infarct i.e 41.9 % cases.
Cytotrophobalstic proliferation	Increased i.e18.82 % in PIH group	Mild PIH 20%,severe 39.13% and in eclampsia 30%	Increased in PIH group i.e.25.8% .
Fibrinoid necrosis	11.3% of the villi	3% of the villi	25 % of the villi
Calcification	in PIH group 12.6%	-	22 %i n PIH group
Medial coat proliferation of the vessels	13% in PIH cases	-	9.7 % cases showed changes all in eclampsia

The perinatal outcome in cases of PIH observed is 10/31 cases showed NICU admission (32.2%), IUGR was present in 12/31 cases (38.7%), IUFD in 14/21 cases (45%).

Oligohydraminos 8/143 (5.4%) is the second common noninfectious risk factor. Our findings correlate to the study performed by Krishna Jagatia et al (2013) ⁵

Table: Comparative Study in Oligohydraminos

	Krishna Jagatia et al (2013)	Present Study
Mean maternal age	23.66 years	26.8years
Mean birth weight	2.33kg	1.4kg
Nicu admission	22%	25%
IUGR(SMA)	18%	37%
IUFD (No.of cases)	4	2

The mean birth weight is 1.4 kg the perinatal outcome was poor with 37% cases showing IUGR

and 25% showing required NICU admission. 2/8 (25%) cases showed perinatal death.

Our histopathological findings correlate with the study performed by Hemlata et al (2015) ⁶.

Table: Comparitive Study of Placental Lesions in Oligohydraminos

	Hemlata et al (2015).	Present study
Amniotic Nodosum	61%	50%
Infarcts	92%	25%
Syncytial knots	84%	75%
Deciduitis	-	50%
Chorioamnionitis	-	50%

Diabetes was present in 5/143 cases (3.49%).All the mothers showed increased blood sugar levels. Mean birth weight is 2606 g. The foetus born to the diabetic mothers showed NICU admission in 1/5 cases (20%), preterm birth in 3/5 cases (60%) and IUFD in 1/5 cases (20%).

The study of placenta revealed changes that correlate to the study performed by Tiwari et al (2011) ⁷

Table No 18: Comparitive Study in Diabetes

	Tiwari et al (2011)	Present study
Increased syncytial knots	80%	100%
Thick basement membrane	100%	60%
Perivillous fibrin	100%	60%
Fibrinoid necrosis	80%	20%
Chorangiogenesis	-	40%

Tiwari et al (2011) showed thickened basement membrane and perivillous fibrin in 100% cases as compared to our study which is 60%.In our study chorangiogenesis was also present in 40% cases.

6/143 (4.2%) cases presented with antepartum haemorrhage (APH). IUFD was present in (50%) cases. IUGR, preterm in (16%). (33%) showed admission to NICU. Microscopic lesions in the placenta were increased syncytial knots and deciduitis in (50%). Infarct, perivillous fibrin, fibrinoid necrosis, chorioamnionitis and funisitis in (16%) cases.

5/143 (3.5%) cases presented with PROM. Deciduitis was seen in (80%) cases, chorioamn-

ionitis in (60%), calcification and perivillous fibrin in (40%).

2/143 mothers presented with bad obstetric history. Thickened basement membrane, villitis, deciduitis, infarct, fibrinoid necrosis, chorangiogenesis were present in (50%) cases.

The infectious causes observed were hepatitis HEV infections 6/143 (4.2%), HbsAg 2/143 (1.39%), HIV 4/143 (2.79) also one case of varicella infection is observed 1/143 (0.69%) and one case of VDRL positive 1/143 (0.69%).

HEV infected mothers in our study showed preterm birth in 2/6 (33%), IUGR in 2/6 (33%) and IUFD in 1/6 (16%).This is similar to the study performed by Kumar et al. (2004) ⁸ which showed mortality in (26.9%) .

Histologically all the cases in our study infected with HEV showed villitis 6/6 (100%),deiciditis 3/6 (50%) and chorioamnionitis 6/6 cases(100%).

Hbsag positive mothers were (1.39%). All the foetus were born preterm. Chorioamnionitis present in (100%) cases. Chorangiogenesis, perivillous fibrin, and funisitis in (50%) cases.

We have encountered 4/143 (2.72%) cases of HIV positive mothers. Mean foetal birth weight in these cases is 1525 g. The perinatal outcome was poor,1/4 cases shows IUFD (25%), 2/4 cases showed IUGR (50%),1/4cases showed preterm birth (25%).

Microscopic lesions were compared with that of Ackerman et al (2013) ⁹

Table No 19: Comparative Studies in HIV

	Ackerman et al (2013)	Present study
Chorioamnionitis	27%	100%
Deciduitis	21%	75%
Perivillous fibrin	-	50%
Calcification	-	25%
Villitis	1	-

The percentage of chorioamnionitis and deciduitis is higher in our study than Ackerman et al. In our study we have also diagnosed one case of CMV deciduitis.

One case of maternal varicella infection was observed with IUGR and NICU admission.

Microscopically inflammation of the membrane and deciduas was present.

One VDRL positive was also encountered with preterm delivery. Microscopically chorioamnionitis was observed.

The most common non-infectious risk factor encountered was fever 20/143 (13.9%). No any specific aetiology was diagnosed by the obstetrician and the mothers presented with fever only.

Gross examination of the placenta didn't reveal any significant pathology. Microscopic examination revealed increased syncytial knots in 5/20 cases (25%). Deciduitis was present in 17/20 cases (85%), increased perivillous fibrin 7/20 cases (35%), calcification 7/20 cases (35%), fibrinoid necrosis 5/20 (25%). Infarct and villitis was present in 1/20 cases (5%), chorioamnionitis is present in 9/20 (45%).

The cases showed poor perinatal outcome with IUGR in 8/21cases (38%) , 3/21 preterm delivery in (14%), and IUFD in 2/21 cases(9.5%), Post-term delivery in 2/21 cases (9.5%) and NICU admission in 7/21 (33.3%).

In the study performed by Altshuler¹⁰ chorangiosis was seen in (5%) cases while in our study it is slightly higher (6.16%).

We have also encountered one case of chorangioma 1/146(0.68%), the foetus was full term with no any other abnormality.

The most common lesion in membranes was chorioamnionitis 58/146 (40%), meconium stained liquor and amniotic nodosm 4/146 (2.7%) each.

The lesions associated with umbilical cord were funisitis 13/146 cases (8.09%). We have also encountered cases of single umbilical artery 2/146 ((1.36%).This figure was slightly higher than Leung et al ¹¹ who reported single umbilical artery in (0.28%).

1/2 cases (50%) associated with poor foetal outcome i.e IUFD and congenital anomaly which is slightly higher than Leung et al i.e. (44.7%).

In our study poor perinatal outcome were present in 110/143 cases (76.9%).IUGR being the most common i.e 39/143 cases (27.3%) followed by IUFD 30/143 (20.9%), preterm delivery 23/143 (16%),babies born with congenital anomaly 6/143 (4.2%), twin pregnancy 7/143 (4.9%), post term pregnancy 4/143 (2.79%), triplet pregnancy 1/143 (0.7%).

IUGR was the most common perinatal outcome observed in our studies. Mean foetal weight was 928 g in IUGR group .NICU admission was seen in 19/39 (48.7%) cases.

The placental weight reduced to 185 g in IUGR cases as compared to mean placental weight of 513 g in normal group.

Microscopic lesions observed in IUGR cases were increased syncytial knots (66%) infarcts (12%), perivillous fibrin (35.89%), fibrinoid necrosis of the villi (17%) cytotrophoblastic hyperplasia (10.2%), thickened basement membrane (7.69%) and calcification (35.89%). The findings were compared with the studies done by Shirishkar et al (2014)¹² and S .Kotgirwar et al (2011) ¹³

Table No 20: Comparative Studies in IUGR

	Shirishkaret al (2014)	S Kotgirwar et al (2011)	Present study
Mean placental weight	400g in term pregnancy and reduced in IUGR	281 g in IUGR	185 g in IUGR
Mean foetal weight	-	1508 g in IUGR	928 g in IUGR
Syncytial knots	24%	60% increased	64% increased
Infarcts	68%	1.8%	12%
Perivillous fibrin	13%	16.7%	35.8%
Calcification	53%	60%	35.8%
Fibrinoid necrosis	8%	46.7%	17%
Cytotrophoblastic hyperplasia	18%	-	10.2%
Thick basement membrane	34%	-	7.69%
PIH risk factor	23%	-	30%

In contrast to the two studies where they didn't find any lesion associated with membrane or cord, in our study .Deciduitis was present in 25/39 cases (64.10%), chorioamnionitis was present in 20/39 cases (51.2%) and funisitis in 4/39 cases (10.25%), villitis was present in 2/39 cases (5.1%) The most common risk factor in our study causing IUGR was maternal hypertension 12/39 cases (30%).This finding in Shirishkar et al (2014) where PIH was the cause for IUGR in (23 %) cases and study done by Yucesoy G et al (2005)¹⁴ which showed (54.11%) with severe preeclampsia and (34.5%) with mild preeclampsia cause IUGR in (29.4%).The other risk associated with IUGR were maternal fever 8/39 cases (20.5%), oligohydraminos 3/39 cases (7.6%), PROM 1/39 cases (2.56%).HIV infection 2/39 cases (5.12%) and HEV 2/39 cases (5.12%).

The second poor perinatal outcome studied was IUFD and still births. We have analysed the risk factors, placental pathology and its relation to the outcome. The risk factors were compared to the study performed by Sharma, et al (2016)¹⁵

Table No 21: Comparative Studies of Risk Factors in IUFD and Still Births

	Sharma, et al (2016)	Present Study
Maternal Hypertension	32.8%	46.6%
APH	18.8%	10%
Congenital malformation	8.8%	10%
Diabetes	2.4%	3.3%
Fever	2.4%	6.6%
Infective hepatitis	0.8%	3.3%

The mean birth weight in our study caused by IUFD is 676 g and 4/30 cases showed NICU admission.

The placental examination revealed reduced mean placental weight i.e 306 g. Infarcts were present in 14/30 cases (46.6%) and 6/30 (20%) cases showed retroplacental hematoma.

The histological lesions were compared with the study performed by Gunyeli et al (2011)¹⁶

Table No 22: Comparative Studies of Histology of Placenta in IUFD and Still Births

	Gunyeli et al (2011)	Present Study
Infarction	36%	36.6%
Villitis	37%	10%
Fibrinoid Necrosis of Villi	31%	30%
Perivillous Fibrin	31%	30%
Calcification	-	6.6%

Our study showed one case of single umbilical artery associated with IUFD (3.3%) which is less as compared to the study done by Burshtein et al (2011) where the incidence was (6.6%)¹⁷

The other common poor perinatal outcome present in our study was preterm deliveries 23/143 (15.75%). 3/23 cases showed NICU admission (13%).

Histology showed inflammation of decidua in 8/23 cases (34%), chorioamnionitis in 12/23 (52%) and funisitis in 4/23 cases (17.39%), villitis in 2/23 cases (8.7%).This percentage of inflammatory lesions causing preterm birth in our study was higher as compared to the study done by Vedovato S et al (2010)¹⁸ where the percentage of associated inflammation was 30%.

The study done by Z. Liu et al (2013)¹⁹ revealed inflammatory lesions in preterm birth as (48%), of which chorioamnionitis contribute (40-70%).

The other histological lesion seen were perivillous fibrin 9/23 cases (39%), increased syncytial knots 10/23 cases (43%), chorangiosis 6/23 cases (26%). In our study 7 (4.9%) cases presented with twin gestation.1 out of 7 cases showed placenta with two disc while others were with single disc. All were monochorionic diamniotic. Increased syncytial knots present in (71%), calcification in (42%), chorangiosis in (28%), perivillous fibrin in (14%). The mean birth weight was 1510 g and (85%) were admitted in NICU. IUGR was present in (57%) and preterm birth were in (42%).

One case of triplet pregnancy was studied. Three discs were present on gross. Microscopy showed increased syncytial knots, perivillous fibrin. All the three foetus were born preterm.

The babies born with congenital anomalies are 6/143 (4.0%). The cases showed IUFD in 3/6

cases (50%) which is higher than study done by Sharma et al¹⁵ where the percentage was (8.8%). There was single umbilical artery in one case.

Histology revealed perivillous fibrin in 3/6 (50%) cases, increased syncytial knots 4/6 (66%) cases, calcification 2/6 cases (33%), deciduitis and chorioamnionitis in 1/6 cases (16%).

Post term delivery were present in 4/143 cases (2.79%). Histology showed deciduitis in 2/4 (50%) cases, increased syncytial knots and thick basement membrane, fibrinoid necrosis, and calcification in 1/4 cases (25%) Chorioamnionitis in 2/4 cases (50%).

Conclusion

A two year prospective study was done in the department of pathology of tertiary care hospital. A total of 146 placentas were studied.

- 72% of the mothers were in the age group of 21-30 yr. The youngest was of age 18 yrs and the oldest was 36 yrs. None of the female was above 40 yrs and below 15 yrs of age.
- Most common pregnancy related risk factor was hypertension in pregnancy (21.08%) and was associated poor perinatal outcome.
- Most common general risk factor observed was maternal fever (13.9 %).
- Various histological lesions were observed in our study. Most common histological lesion observed was chorioamnionitis (41.95%) followed by deciduitis (41.25%)
- Overall poor perinatal outcome was present in 110 out of 143 (76.02%).
- The commonest poor perinatal outcome observed was IUGR 39 out of 143 (27.2%).
- In IUGR the most common risk factor observed was PIH 12 out of 39 (30.76%). The commonest placental lesion observed was deciduitis 25 out of 39 (64.10%) and chorioamnionitis 20 out of 39 (51.2%), calcification and perivillous fibrin were present in 14 out of 143 cases (35.9%) each.

- IUFD and still births were present in 30 out of 143 cases (20.97 %). The most common risk factor associated was PIH 14 out of 30 cases (46.6%). The histological lesions in descending order of frequency were Chorioamnionitis 17 out of 30 cases (56.6%), infarct 11 out of 30 cases (36.6%), deciduitis 10 out of 30 cases (33.3%), fibrinoid necrosis 9 out of 30 cases (30%), funisitis 7 out of 3 (23.3%)
- Congenital anomalies in the baby were present in 6 out of 143 cases (4.19%). Histology of the placenta in these cases revealed perivillous fibrin in 3 out of 6 (50%) cases, calcification 2 out of 6 cases (33%), deciduitis and chorioamnionitis in 1 out of 6 cases (16%).
- Preterm births were 23 out of 143 cases (15.7%). Histology in these cases revealed chorioamnionitis in 12 out of 23 (52%), deciduitis in 8 out of 23 cases (34%) and funisitis in 4 out of 23 cases (17.39%) Inflammation of membrane, cord and decidua were responsible for uteroplacental insufficiency and poor pregnancy outcome. Examination of placenta is essential for the histological diagnosis of the lesions. It also helps in diagnosis of the disease which may not be suspected by the obstetrician.

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