

ISSN:0976-3031

Available Online at <http://www.recentscientific.com>

International Journal of Recent Scientific Research
Vol. 7, Issue, 4, pp. 10527-10529, April, 2016

**International Journal of
Recent Scientific
Research**

Research Article

PLACENTAL PATHOLOGY IN PREGNANCY INDUCED HYPERTENSION

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ARTICLE INFO

Article History:

Received 29th January, 2016
Received in revised form
19th February, 2016
Accepted 25th March, 2016
Published online 28th April, 2016

ABSTRACT

Introduction: - Placental examination is a simple & non-invasive method which plays an important role in predicting & improving outcome of pregnancy. Its strategic location at fetomaternal interface provides a record of pregnancy in which the cumulative effects of pregnancy related events and changes reflecting the intrauterine environment can be scrutinized.

Aims & Objectives: - To diagnose lesions of placenta in cases of pregnancy induced hypertension in 2nd & 3rd trimester of pregnancy.

To classify the lesions on the basis of clinical presentation and to compare the results with relevant investigations.

Material & Methods: - This study includes histopathological examination of placenta in cases of PIH during period of May 2009 to April 2011. The study was carried out at KIMS, Karad having a tertiary care hospital.

Observation: - 28 cases (19.4%) cases of PIH were obtained amongst 144 cases which comprised of 17 cases (60.72%) having severe PIH, 11 cases (39.28%) having mild PIH. 18 cases (64.28%) reveal increased morbidity and mortality in the form of intrauterine death, stillbirth, low placental weight, low birth weight due to utero-placental insufficiency.

Conclusion: - Histopathological examination of placentas in cases of pregnancy induced hypertension proves exceedingly valuable in timely management and helps to improve the outcome of pregnancy.

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INTRODUCTION

Placental examination is a simple & non-invasive method which plays an important role in predicting & improving outcome of pregnancy. Its strategic location at fetomaternal interface provides a record of pregnancy in which the cumulative effects of pregnancy related events and changes reflecting the intrauterine environment can be scrutinized. This study was carried out to diagnose lesions of placenta in cases of pregnancy induced hypertension during period of 2 years from May 2009 to April 2011.

MATERIAL AND METHODS

This study included histopathological examination of placentas in cases of PIH during period of May 2009 to April 2011. The study was carried out at Krishna Institute of Medical Sciences, Karad having a tertiary care hospital. Ethical clearance for the study was obtained from the institutional review board. All the placentas in cases of pregnancy induced hypertension received in our department in 2nd & 3rd trimesters of pregnancy were included in the study. Placentas in first trimester of pregnancy were excluded from the study.

Placentas with attached membrane and umbilical cord were submitted to the pathology department for examination. After receiving the specimen it was washed in running tap water, weighed and cut into vertical segments of 1-2 cm thickness from maternal to fetal surface to ensure proper fixation and then it was fixed in adequate volume of 10% formalin for 1 week. All the placentas were considered potentially infectious and were handled in accordance to Universal precautions. The gross examination of the placenta was done with careful review of the umbilical cord, placental membranes, fetal and maternal surfaces. All significant lesions were noted. The diagnosis was made on microscopy in the light of clinical details and investigations.

RESULTS

We observed 28 (19.4%) cases of PIH amongst total cases. Seventeen (60.72%) were having severe PIH, while 11 (39.28%) were having mild PIH. Out of total 28 cases of PIH, 18 cases (64.28%) showed increased morbidity and mortality which included, intra uterine death 9 cases, still birth 7 cases and eclampsia 2 cases. Amongst severe PIH cases, 13 placentas (76.4%) showed low placental weight, while in mild PIH only 2 cases (18.2%) showed low placental weight for expected

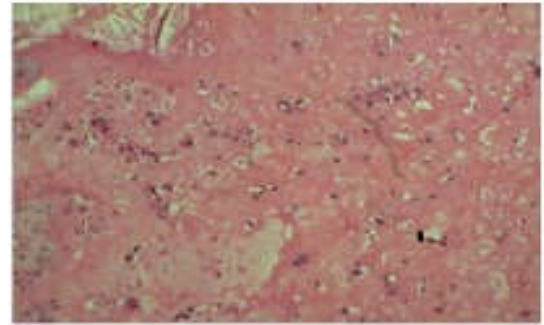
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gestational age. It revealed that low placental weight was significantly associated with PIH (Chi-square=6.930 and P value 0.08). Weight of baby was smaller than expected gestational age in 14 cases (82.3%) of severe PIH and 4 cases (35%) of mild PIH. It revealed that low birth weight was significantly associated with PIH (Chi-square=4.312 and P value 0.03).

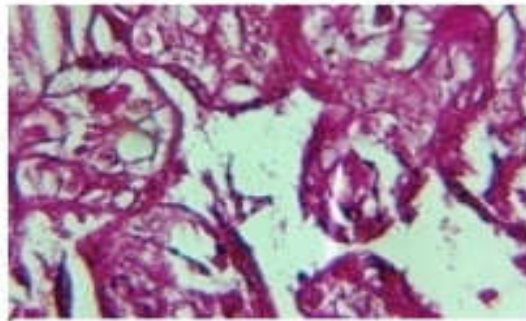
revealed increased infarcts, syncytial knots, maternal vessel thrombosis and fibrinoid necrosis.



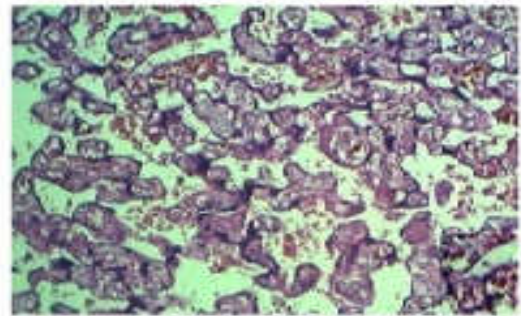
GROSS PHOTOGRAPH SHOWING FRESH PLACENTAL INFARCT



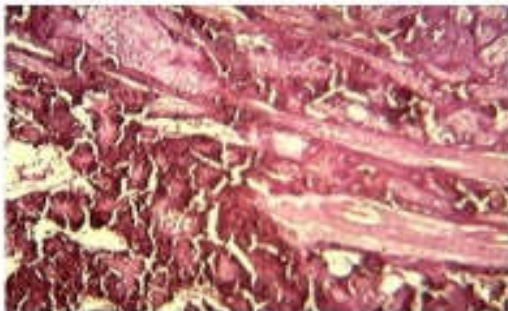
PHOTOMICROGRAPH SHOWING OLD INFARCT (H& E STAIN : 100X)



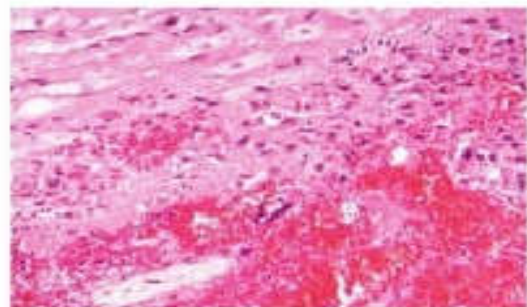
PHOTOMICROGRAPH SHOWING VILLI WITH BASEMENT MEMBRANE THICKENING (H&E STAIN: 400X)



PHOTOMICROGRAPH SHOWING SYNCYTIAL KNOTS (H& E STAIN: 400X)



PHOTOMICROGRAPH SHOWING CALCIFICATION (H& E STAIN : 400 X)



PHOTOMICROGRAPH SHOWING RETROPLACENTAL CLOT (H & E STAIN: 100 X)

Placentas were smaller in PIH, large multifocal infarcts 12 (42.85%) cases being commonest pathology, followed by retroplacental clot 8 (28.5%) cases, abruption 6 (21.42%) cases and calcification 2 (7%) cases. Infarcts were seen at the base and edge and were extensive.

Infarcts were seen in 10 cases (58%) of severe PIH and 2 cases (18.2%) of mild PIH. Uteroplacental insufficiency (UPI) contributed the major pathological diagnosis in 78.6% cases as documented in literature.⁽⁹⁾ Uteroplacental insufficiency (UPI)

DISCUSSION

Present study included 28 (19.4%) cases of PIH. Majority (60%) of cases revealed severe PIH similar findings observed in study by Narasimha A, Vasudeva DS¹. Out of total cases of PIH, 18 (64.28%) cases showed increased morbidity and mortality which included intra uterine death 9 cases; still birth 7 cases and eclampsia 2 cases, similar clinical outcome obtained by Alexander and colleagues (2006) who studied 6518 patient with PIH².

Gross examination of placentas in cases of PIH revealed small size of placenta, large multifocal infarcts 12 (42.85%) cases being commonest pathology, followed by retroplacental clot 8 (28.5%) cases, abruption 6 (21.42%) cases and calcification 2 (7%) cases. Infarcts were seen at the base and edge and were extensive and commonly seen in cases of severe PIH.

It revealed that low placental weight was significantly associated with severe PIH.

These findings correlated with other studies.^{3,4,5} Weight of baby was smaller than expected gestational age in 14 cases (82.3%) of severe PIH, and 4 cases (35%) of mild PIH. It revealed that low birth weight was significantly associated with severe PIH^{6,7} which correlate with findings of other studies^{3,4,5,8}.

CONCLUSION

PIH contributed 19.4% of cases amongst all the placentas received. Placental examination in cases of PIH reveals increased morbidity and mortality in the form of low placental weight and low birth weight of baby. Pathology of placenta in PIH reflects changes of uteroplacental insufficiency like large multifocal infarcts, syncytial knots, basement membrane thickening, stromal fibrosis of villi and calcification. Thus a placental change in PIH directly affects the growth and nutrition of fetus in utero. Clinical history and investigations of mother like ultrasonography plays an essential role while making histopathological diagnosis of placental lesions.

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How to cite this article:

Nanda Patil., Vijay Bonde and Jitendra Khedkar.2016, Placental Pathology in Pregnancy Induced Hypertension. *Int J Recent Sci Res*. 7(4), pp.10527-10529.