

were dissected out, weighed and observed for gross malformations, followed by photography. Finally, the vital organs were fixed in 10% formalin up to 48 h for further microscopic studies.

Result: On macroscopic examination, there were reduction in size and weight of the various vital organs of treated group. The microscopic findings of treated liver showed destruction of parenchyma along with dilated central vein and sinusoids, while treated kidney showed destruction and degeneration of cortical and medullary cellular structures. The treated brain showed dilated ventricles, damage of ependymal lining, degeneration of choroid plexus and oedematous changes in cortical and sub-cortical zones. The treated placenta showed degeneration of various zones, degenerated trophoblastic cells and sinusoids.

Conclusion: Propylthiouracil shows degenerative effect on various vital organs when given during period of organogenesis, so it should be cautiously used in first trimester of pregnancy.

Conflicts of interest

The authors have none to declare.

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A fetal study of craniorachischisis, with emphasis on prenatal diagnosis and prevention



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Introduction: Central nervous system (CNS) malformations constitute a sizeable percentage of the total incidence of the congenital malformations second only to cardiac malformations. Failure of fusion of cephalic part of neural tube is known as exencephaly and caudal part of neural tube is Spina bifida. Therefore emphasis was based on prenatal diagnosis and prevention.

Materials and methods: The present study includes 2000 live births in a period of 2 years with 100 stillborn fetuses and abortuses to elucidate craniorachischisis. The fetuses were sent from the Department of Obstetrics and Gynaecology KAMS&RC. The detailed study of these fetuses was done after fixing with formalin and the findings were appropriately documented and photographed.

Results: The three unclaimed fetuses were female, of which two were craniorachischisis totalis of 40 weeks and 23–25 weeks and the other being craniorachischisis with an omphalocele of 26–28 weeks.

All these fetuses showed presence of anencephaly with extension of defect to the thoracic and lumbosacral region.

Discussion: Neural tube defect (NTDs) is an embryonic induction disorder which results from failure of formation of both mesoderm and neuro-ectoderm. The reduction of 50–70% of NTDs following peri-conceptual folic acid administration initiated series of clinical studies by number of authors. In conclusion most NTDs are sporadic and both genetic and non-genetic environmental factors are involved in its aetiology.

Conflicts of interest

The author has none to declare.

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A study on anencephaly and associated anomalies at a tertiary health care center



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Introduction: Anencephaly is a neural tube defect that occurs in 1–8 births in every 10,000 births in various populations in world. Infant organ transplant has led to renewed interest in study of anencephaly.

Aim: Current study was performed to find out associated abnormalities of anencephaly and their relative frequency.

Materials and methods: Study was performed on 30 fetuses of less than 20 weeks gestation obtained from Department of Gynecology and Obstetrics at Pt. B. D. Sharma PGIMS Rohtak. Fetal autopsies were performed to find out the spectrum of anomalies in each fetus included in study.

Results: Anencephaly was found in 50 percent of cases in study. External ear malformations were found associated with 53 percent cases. Proptosis was most common associated anomaly observed in 46 percent of cases of anencephaly. Meningomyelocele, Spina bifida, curvature anomalies of spine and neck maldevelopment were observed in 40 percent of cases. Liver anomalies and lung anomalies were found in 26 percent of cases. 20 percent cases were associated with congenital talipes equino varus (CTEV). Gastrointestinal tract anomalies associated with anencephaly included duodenal atresia and stomach hypoplasia.

Conclusion: External ear malformations and proptosis are most common malformations associated with anencephaly whereas spina bifida, meningomyelocele, and curvature anomalies of spine are other common associations of anencephaly.

Conflicts of interest

The authors have none to declare.

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Gross morphological features of human placenta from control and gestational diabetic mothers



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Aim: Gestational diabetes mellitus (GDM) is an ever increasing threat in Indian women, found up to 10% of the total pregnancies and is mainly due to diet, obesity and sedentary life style. Placenta is the vital organ of intrauterine life, forms the picture of whole pregnancy. The present study has undertaken to observe the morphological changes of GDM and control placenta.

Material and methods: Total number of 110 placentas, out of which 55 are GDM and 55 from control were procured for the present study along with mother's age, gestational age and baby's weight. All samples were studied morphologically and histologically.

Result: The morphological aspects of GDM were found be more significant when compared to normal. In GDM placentas, mean placental weight was 537.27 ± 131.97 with a range of 330–890 g, mean placental volume was 482.61 ± 142.17 ml³ in GDM with

a range of 144.12–700 ml³, and mean placental diameter was 168.2 ± 13.23 mm with a range of 147–186 mm. Thickness in GDM was 23.69 ± 5.08 mm. The average number of placental cotyledons was 19.38 ± 3.4 in GDM, which was significantly higher, revealed its excessiveness. Feto-placental ratio was 5.96 ± 1.06 in GDM. Histological findings showed vascular hyperplasia, cytotrophoblast proliferation, calcification of villi, fibrinoid necrosis, hyalinisation, and thickening of basement membrane and wall of stem arteries.

Conclusion: Significant placental morphological and histological changes of GDM observed in the present study may be considered as a clinical importance. The impact of these changes may reflect on perinatal outcome of the pregnancy, resulting in macrosomia, congenital malformations and intrauterine growth retardation.

Conflicts of interest

The authors have none to declare.

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Hydrogen sulphide producing enzymes are decreased in preeclamptic placentae



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Introduction: Preeclampsia, a human pregnancy specific disorder is characterized by a poorly perfused, ischemic placenta which may release anti-angiogenic and pro-oxidant factors in maternal circulation causing endothelial dysfunction. Thus it becomes imperative to study the expression of compounds like hydrogen sulphide which recently have been shown to possess pro-angiogenic and anti-oxidant properties. In the present study, we aimed to compare the status of these hydrogen sulphide producing enzymes cystathionine-gamma-lyase (CSE) and cystathionine-beta-synthase (CBS) in placenta from preeclamptic as well as normotensive non-proteinuric (control) pregnant women.

Methods: The placentae from gestational and maternal age matched preeclamptic ($n = 20$), and normotensive, non-proteinuric controls ($n = 20$) were obtained from department of gynaecology after taking ethical clearance. The paraffin embedded placental tissues were processed for immunohistochemistry. The rabbit polyclonal primary antibodies were used to see the expression of CSE & CBS using streptavidin–biotin complex method. Images were captured using Nikon Ti-S microscope. The mean intensity was analysed using NIS elements advanced research software.

Results: The mean intensity of CSE and CBS in the chorionic villi was significantly lower in the placentae of preeclamptic (PE) as compared to the control placentae ($p < 0.01$). CBS was localized in syncytiotrophoblasts as well as blood vessels whereas CSE was present predominantly in fetal vessels.

Conclusion: Decrease in CBS and CSE in preeclamptic placentae as compared to normotensive placentae observed in the present study indicates down regulation of anti-oxidant substances which could result in increased oxidative stress in trophoblast cells during early gestation leading to the development of preeclampsia.

Conflicts of interest

The authors have none to declare.

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Cobbler's cut: A new modality for procuring ossicles



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Introduction: Temporal bone is one of the most complex bones in the human body and it serves a valuable source for learning anatomy of tympanic cavity housing ossicles. Methods for dissecting the middle ear, which were described in the text books of anatomy and ENT mainly involve the piece meal removal of the bone.

Material and methods: The present study was conducted on 250 temporal bones of 125 unidentified cadavers. Temporals were dissected and studied with the help of *Cobbler's cut technique*. This is a very simple technique which involves only a single chisel cut that quickly exposes the middle ear cavity and helps in easy procurement of ear ossicles.

Results: Bilateral temporal bones were evaluated for the efficacy of the technique. In 88% of cases a complete set of ear ossicles were retrieved easily and in 12% cases the complete set of bones could not be collected, as one or two bones were found to be broken or missing.

Conclusion: In contrast to the traditional methods of piece meal removal of bone for exploring the middle ear cavity, the Cobbler's cut technique proves to be the easier, less time consuming and least destructive method of dissection for procurement of ear ossicles.

Conflicts of interest

The authors have none to declare.

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A study of sexual dimorphism in permanent mandibular canines and its implication in forensic dentistry



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Aims and objective: To calculate mandibular canine index and sexual dimorphism methods for sex determination.

Material and methods: Present study was conducted on 180 adult subjects (90 males and 90 females) in age group 17–25 years who visited Govt. Dental College and private dental clinics for various complaints. Patients with carious teeth, periodontal diseases and malocclusions were ruled out. Mandibular arch width was measured intra-orally from tip of right canine to the tip of left canine. Mesiodistal Width of both Mandibular Canines was also calculated. Measurement is divided into two groups. Group A as male & Group B as female.

Method of study:

1. Mandibular canine index = $\frac{\text{mesiodistal own width of mandibular canine}}{\text{mandibular canine arch width}}$
2. Sexual dimorphism = $\frac{X_m}{X_f}$

X_m – mean value in males.

X_f – mean value in females.

Result: The intra-Oral Canine Index was calculated to be 0.28 in right mandibular canine; and 0.28 in left mandibular canine among