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Prevalence of Structural Congenital Anomalies, Diagnosed by Prenatal Ultrasound Screening in a Secondary Care Hospital in Oman

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ABSTRACT

Objectives: We aimed to measure the prevalence of structural isolated or multiple congenital anomalies by prenatal ultrasound diagnosis, provide detailed parental counseling, and optimize perinatal management. **Methods:** We performed a retrospective cross-sectional study over a 12-month period from April 2016 to March 2017 at fetal assessment clinic in Ibri Regional Hospital. All women with a history of pregnancy involving a congenital anomalous newborn, high risk for abnormal fetus, or diagnosed with suspected abnormal fetus in current pregnancy were included in this study. The study excludes multiple gestation, placental or cord abnormality, and functional anomalies. The prevalence of antenatal fetal anomalies was calculated from the total number of examined patients. Variables were analyzed by socio-demographic characteristics and prenatal frequencies of fetal anomalies. p -value < 0.050 was considered as statistically significant. **Results:** During the 12-month study period, ultrasound examinations were performed for 668 pregnant women, and 45 cases diagnosed with structural fetal anomaly were eligible for review. Among the 45 cases, isolated and multiple anomalies were accounted for 30 (67%) and 15 (33%) cases, respectively. Our result reported a 6.7% prevalence of structural either isolated or multiple congenital anomalies among the study population. Urinary system (26.7%) and brain (17.8%) anomalies were the most frequently detected anomalies. The frequency of Intra uterine death (60%) and neonatal death (70%) were observed higher with multiple anomalies, in comparison to isolated anomalies ($p < 0.001$). Female fetuses were more with the multiple anomalies (73%), whereas isolated anomalies were more prone in male fetuses (57%, $p = 0.050$). Twenty-five (55%) newborn were alive until discharge and 13 (29%) were transferred to the tertiary center for further management.

In relation to female and male fetus, urinary tract (84%) and skeletal abnormalities (75%) were more observed in male fetuses and in female fetuses brain (87%), gastrointestinal (100%), hydrops (75%), and multiple anomalies (70%) were more detected. **Conclusions:** Our result revealed a prevalence of 6.7% of congenital structural anomalies in our study population, which is higher than international figures (35%). As we are not offering termination of pregnancy in cases of major structural congenital anomalies for social, cultural, and religious constrains; detailed, unbiased counseling for the parents is important once a fetal anomaly is identified prenatally and to plan perinatal management of salvageable infants. In case of anomalous fetus, that is not compatible to life, detailed counseling for the parents may also reduce the incidence of unnecessary cesarean sections.

The Correlation of Prenatal Diagnosis of Lethal Congenital Anomalies with Postnatal Findings

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ABSTRACT

Objectives: Prenatally diagnosed abnormalities that are associated with death in utero or in neonatal period are often referred to as lethal malformations and represents 2%. The treating consultant is faced with dilemma due to ethical and religious conflicts regarding termination of pregnancy for fetal indications, which still remain unresolved especially in our country. Another dilemma is the risk of false-positive diagnoses of congenital anomalies, which is a major concern in prenatal diagnostics, in particular when termination of pregnancy (TOP) might be an option. We aim to study the correlation of prenatal diagnosis of lethal congenital anomalies with postnatal findings. **Methods:** It is a retrospective cohort study. All women diagnosed with lethal congenital malformations in fetal medicine clinic, Royal Hospital during November 2016 to September 2017 were included. Data was

collected from patient records. **Results:** A total of 20 patients with lethal congenital malformations were diagnosed during this period and underwent termination of pregnancy or induction of labor for maternal indications in our hospital. Eleven cases underwent prenatal testing, of which three reported as trisomy 18, one Mabry's syndrome, one Warburg micro syndrome, and the rest had normal karyotype. Two had fetuses with hypoplastic left heart syndrome, four had anhydramnios with renal anomalies, four had severe hydrocephalous and Dandy-Walker malformation, two had lethal skeletal anomalies, one had pentalogy of Cantrell, and two had hydrops fetalis. Out of 16 patient who had early induction of labor, 10 had stillbirths and four had early neonatal death. The remaining two are still alive and labeled Do Not Resuscitate (DNR). **Conclusions:** The above findings showed strong correlation of antenatal diagnosis with postnatal outcome. A postmortem examination is useful in confirmation of diagnosis and such service needs to be introduced.

A Study of the Prevalence of Postnatal Depression (PND) in the Sultanate of Oman and the Validation of Appropriate Screening

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ABSTRACT

Objectives: The study aimed to obtain the prevalence of postnatal depression in Oman and to validate appropriate screening tools. **Methods:** This study was a cross-sectional study conducted in some primary health care centers in Oman (Muscat, Ibri, and Izki). Two hundred forty postnatal Omani women were given self-administered Arabic forms of the Post-partum Depression Screening Scale (PDSS) and the Edinburgh Postnatal Depression Scale (EPDS) screening questionnaire followed by a structural clinical interview (SCI) to which those two screening questionnaires were compared. **Results:** The prevalence of postnatal depression in Oman was 10.42% diagnostically. However, it was higher according to the screening questionnaires the PDSS and the EPDS, which is 20% and 25%, respectively. This study validated both PDSS and EPDS with Cronbach's Alpha values 9.42 and 7.70, respectively, which means that they can be used for the screening purposes in Oman. Although the prevalence of postnatal depression seems to be different with the screening tools, the McNemar test showed that there was a strong correlation of the results of EPND and PDSS with the SCI. **Conclusions:** About 10% of the participated

women were diagnosed via the SCI with postnatal depression. Both of the screening questionnaires (EPDS and PDSS) were validated and found to be suitable for screening postnatal depression in Oman.

Cesarean Delivery Outcomes in Obese Obstetric Patients: A Retrospective Cohort Study in Oman.

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ABSTRACT

Objectives: Obesity (body mass index (BMI) > 30 kg/m²) is associated with increased risk of adverse obstetric outcomes. The objective of this study was to analyze the fetomaternal outcome in obese women (BMI > 30 kg/m²) undergoing cesarean delivery at Khoula Hospital. **Methods:** The delivery and operation theatre records for patients with BMI > 30, undergoing cesarean section in 2016 were retrieved from the Shifa system (Hospital Information Management System) in Khoula Hospital, Oman. Patient demographic variables (age, parity, BMI), antenatal, intra-operative, post-operative, and fetal outcomes were analyzed retrospectively. **Results:** Annual incidence of obesity in pregnant women in Khoula Hospital for 2016 was 34.13%. Of the 5999 patients delivered, 1115 (18.58%) had cesarean section. Of the women undergoing cesarean section, 54.6% were obese. Mean age was 33.1 years (95% confidence interval (CI): 32.6–33.5), gestation was 37 + weeks (95% CI: 35–39), and BMI was 35.8 (95% CI: 35.3–36.3). Twenty percent of women had class III obesity. Women that are more obese underwent cesarean section as compared to women with normal BMI (25.3% vs 15.1%), risk difference 10.2% (95% CI: 8–12.430, $p < 0.001$ chi-square test). The relative risk of having cesarean section for obese women was RR: 1.678 (1.51–1.86), $p < 0.001$, odds ratio = 1.67 (1.47–1.90). Sixty-seven percent of patients had a previous cesarean scar. Most common indications for cesarean was previous two more caesarean section (48.4%) and fetal distress (22%). Surgical difficulty perceived by surgeons as well as difficult delivery correlated with increasing class of BMI. Reasons for operative difficulty included difficult delivery, angle extensions, and intra-operative atonic post-partum haemorrhage (5.2%). In the 535 babies analyzed, mean baby birth weight was 3145 gm ± 6381 gm (95% CI: 3088–3203). The rate of fetal macrosomia was 8.3%. Babies required prolonged neonatal intensive care stay due to low birth weight, prematurity, transient tachypnea of newborn jaundice, and hypoglycemia were 10.6%. Apgars was less than seven at five minutes in only three babies (0.56%) and

congenital anomalies were seen in nine babies (1.6%). **Conclusions:** Obesity increased the risk of having cesarean section with increasing BMI being a predictive indicator for operative difficulty. Rate of non-fatal venous thrombo-embolism was low as compared to international standards (0.17% vs 1–2%). Although there was no correlation between fetal weight and maternal BMI, macrosomia (weight > 4 kg) increased with increasing class of obesity. Priority of healthcare resource allocation should emphasize on prevention of obesity and lifestyle modification.

Determinants of MRI and USG-Doppler in the Assessment of Placenta Acreta at SQH, Salalah: A Tertiary Care Experience

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ABSTRACT

Objectives: The aim was to study the value of ultrasound (USG)/magnetic resonance imaging (MRI) alone or in combination in assessing placenta acreta. **Methods:** The study consisted of 25 pregnant female patients with placenta previa and with previous lower segment cesarean section. Subjects were examined prospectively over a period of 24 months from October 2015 to October 2017 by USG doppler and MRI determinants. All the patients were examined by both MRI and USG independently and the results were correlated with time of delivery and/or pathological examination. **Results:** The MRI showed a sensitivity of 84.8% and USG doppler 92.1% in detecting placenta acreta. Combined approach resulted in 96.7%. The MRI showed specificity of 84.8%, USG 90.1%, and combination about 98.1%, positive predictive value (PPV) and negative predictive value (NPV) about 80/85 and 90/96 for MRI/USG, respectively. In our study, we showed that there was no significant difference in sensitivity MRI and USG ($p = 0.315$), but there was significant difference in MRI alone and MRI-USG combination ($p = 0.001$), and USG alone and USG-MRI combination ($p < 0.001$). **Conclusions:** Our study confirmed that combined MRI and USG had higher sensitivity rate than the sensitivity rate observed for either single modality using all the determinants. The diagnostic accuracy improved when MRI was combined with USG in placental infiltration. Our study also implies that USG may be the only viable modality as it has so many advantages especially in patients with contraindications to MRI, a limiting factor for MRI.

Determinants of USG or Doppler to Gynecological Imaging and Reporting System in Ovarian Tumors: A Tertiary Care Experience

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ABSTRACT

Objectives: To determine whether gynecological imaging and reporting system (GIRADS) is practically efficient for determining the management of ovarian tumors, which is based on ultrasound (USG) doppler determinants compared with computed tomography (CT)/magnetic resonance imaging (MRI)/histopathological examination (HPE). **Methods:** This prospective study was conducted from 2015 to 2017 with a total of 202 cases aged 22–82 years. Mean age was 43 years old. The tumors were assessed using USG/doppler with GIRADS category. GIRADS 1 to 5 were scored according to the determinants: category G1 = normal to G5 = malignant. **Results:** Seven cases of category G1, 68 patients with G2, 98 patients with G3, 17 patients with G4, and 12 patients with G5 were diagnosed. Sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and accuracy rate were 91, 98, 84, 98, and 97, respectively. **Conclusions:** GIRADS shows an effective diagnostic performance in a tertiary care hospital. It is a simple tool, which has revolutionized the management of ovarian tumors.

Efficacy of Medical Management in Unruptured Ectopic Pregnancy

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ABSTRACT

Objectives: To analyze the outcome following intramuscular administration of methotrexate in cases of unruptured ectopic pregnancy. **Methods:** This is a retrospective analysis of the outcome following methotrexate treatment in unruptured ectopic pregnancies during a two-year period from June 2015 to May 2017 at Khoula Hospital, Muscat. Data of patients who received methotrexate as medical management were retrieved from Al Shifa 3 computer system. Methotrexate was administered in doses of 50 mg/m² of body surface area to patients satisfying the criteria for medical management. Criteria for administration and follow-up were according to the Royal College of Obstetrics and Gynaecology guidelines. **Results:** There were 120 cases

of ectopic pregnancies in the two-year period. Total pregnancies during this period were 12 444 giving an incidence of 0.96%. Patients who received methotrexate in the above period were 47 (39%). All were unruptured tubal ectopics except one, which was a scar ectopic. Analysis of results show that only 21 (45%) cases had risk factors. Mean age was 31 years and mean gestational age was 6 weeks. Ectopic pregnancy was more common in nulliparous 17 (36%) women and women of low parity 21 (44%) cases. Infertility was the main risk factor in eight patients and two of them had invitro fertilization and embryo transfer. Previous ectopic pregnancy and conception with insitu intrauterine device were noted in four and three cases, respectively. Treatment was successful in 36 (76%), though 18 (39%) patients received two doses. Average resolution time noted in this study was five weeks except in a case of scar ectopic, which took nine weeks. There were 11 (24%) cases of failure, six (12.7%) patients had rupture, three after first dose, and three after second dose. All of them underwent laparotomy and salpingectomy. The cases which ruptured had the initial B-hCG levels ranging from 826–4900 IU/L. Regarding adnexal mass size, only one patient had adnexal mass size more than 3.5 cm. The other five cases though did not rupture needed surgical management due to increase in the mass size, being symptomatic or became live ectopic. **Conclusions:** Medical management is a safe and effective option in carefully selected cases of unruptured ectopic pregnancies. Our incidence of ectopic pregnancy and success rate following medical management are comparable to that reported in literature.

Gestational Trophoblastic Disease at Sultan Qaboos University Hospital: Prevalence, Risk Factors, Histological Features, Sonographic Findings, and Outcome

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ABSTRACT

Objectives: To assess the prevalence of gestational trophoblastic diseases (GTD) among pregnant women at Sultan Qaboos University Hospital (SQUH) during the study period and compare the results with international studies. To determine the risk factors, histological features, sonographic findings, and the outcome in women with GTD. **Methods:** A retrospective cohort

study was conducted on all women diagnosed with GTD and followed at SQUH from November 2007 to October 2015. The following data was collected from the hospital information system, Gynecology and main operative theater registries: maternal demographics, risk factors, sonographic features, histological diagnosis, follow-up period, and the treatment with chemotherapy. **Results:** Sixty-four women with GTD were included in the study. Mean maternal age was 31 years, mean gravidity 4, and parity 2. The prevalence was 0.26% (1 in 386 births) and the most common risk factors for GTD were increased maternal age and multiparity. Partial mole was diagnosed in 54.7%, complete mole in 43.8% and invasive mole in 1.5%. Eleven percent of women required chemotherapy. Typical ultrasound features for partial molar pregnancy was present in 54.3% of our sample, while snowstorm appearance was seen in 89.3% of those with complete mole. Negative β hCG was achieved after 70 days of the diagnosis in 41 women. However, in 23 women, the follow-up was done elsewhere. **Conclusions:** The awareness of the risks and complications of GTD among physicians with a close follow-up is paramount. The establishment of a national registry of GTD is crucial in this country.

Onsite Training of Healthcare Professionals in Obstetric Emergencies: Two-year Experience with Practical Obstetric Multi Professional Training (PROMPT)

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ABSTRACT

Objectives: To assess the effect of introducing Practical Obstetric Multi Professional Training (PROMPT) in to maternity unit in Sultan Qaboos Hospital (SQH) and evaluate effects on clinical outcomes. **Methods:** This is an observational study of obstetric outcomes before and after the initiation of annual, multi-professional training at SQH, Salalah, Oman. In January 2015, PROMPT training was introduced to SQH by a team of four included two doctors and two midwives who attended the two days course of PROMPT training of trainers (TOT) in Dubai. The course was organized by a team from Royal College of Obstetricians and Gynecologists (RCOG) UK, London. From January 2015, in house training was introduced to the maternity unit, a total of eight courses were completed in the past two years. Participants were obstetricians, nurses, midwives, private sector health professionals, operation theatre staff, and anesthetists. The course conducted included major obstetric emergencies; like obstetric hemorrhage, shoulder dystocia, eclampsia, maternal collapse, sepsis, breech delivery and neonatal resuscitation, and team work and communication

skills during emergency. The training involves on sight simulation at low cost, which is design to optimize multi-professional team working. Case notes for all cases with shoulder dystocia were reviewed. Level of documentation was assessed. Organizational culture was compared before and after the course using attitude questionnaire. **Results:** Local monitoring of clinical outcomes is a key part of improving care quality and assessing the effect of training initiatives. One hundred percent of maternity staff was trained on sight. Local system changes included: the introduction of an emergency boxes, color-coded early warning observation charts and a structured proforma for documentation. These changes have been associated with a reduction in neonatal injury in shoulder dystocia almost by 50%, improvement in standard of care of hemorrhage and eclampsia, and noticeable improvement in documentation of almost all the emergencies. Introducing obstetric emergencies training and tools was feasible onsite and improved clinical practice was sustained by local staff and associated with improved clinical outcomes. Staff reported more confidence in their management of emergencies and a perception that emergency management has improved overall. **Conclusion:** PROMPT training has improved the knowledge and skills of staff. Staff reported more confidence in their management of emergencies especially shoulder dystocia, maternal collapse and obstetric hemorrhage. It bridges the gap between theory and real-life, providing hands-on practical training. The training also provides an opportunity to implement and disseminate evidence-based guidelines, by encouraging the use of management algorithms, such as the RCOG shoulder dystocia algorithm, eclampsia algorithm, and documentation proforma.

Outcome of Male and Unexplained Infertility Treatment in Couples Treated in Sultan Qaboos University Hospital

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ABSTRACT

Objectives: Infertility is not only a social issue but also needs medical assistance in many couples. Male causes for infertility are well-known with social and emotional manifestations in many societies. According to many studies, semen abnormalities are more prevalent nowadays. In some couples, all basic affordable investigations are normal and classified as unexplained infertility. The research aimed to study the success of treatment for male and unexplained infertility in patients treated in Sultan Qaboos University Hospital (SQUH). **Methods:** This was a descriptive retrospective study targeting couples with infertility attending obstetrics and gynecology

clinic at SQUH from January 2012 to December 2014. The total sample size was 209 couples. The data collected included patient's demographics, history, infertility type, male infertility causes, investigations, infertility duration, treatment outcome, and pregnancy outcomes (if pregnancy achieved). The data was analyzed using SPSS program. **Results:** Male factors accounted for 18.1% of infertility and 34.2% of those archived pregnancy while unexplained infertility contributed to 22.4% and 63.8% of them achieved pregnancy. In couples with male infertility, pregnancy rates of 28.6% obtained by surgical correction of varicocele while unexplained infertility was best treated with ovulation induction. Infertility duration and age of men were inversely related with pregnancy achievement. **Conclusions:** Male infertility prevalence was found less than other studies while unexplained infertility was more than expected. This may be due to refusal of some of the men to get investigated. Male infertility was best treated with surgery mainly varicocelectomy. Infertility duration and age of the men were inversely related with pregnancy achievement, but this did not reach statistical significance. Unexplained infertility was effectively treated by ovulation induction alone and intrauterine insemination as what is reported by many other studies.

Paradigm Shift in Intrapartum Cardiotocograph (CTG) Interpretation and Impact on Cesarean Section Rate: Does pathophysiology really matter?

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ABSTRACT

Objectives: To assess the effect of training on cardiotocograph (CTG) interpretation based on fetal physiology and pathophysiology of intrapartum hypoxic injury in reducing unnecessary cesarean section. **Methods:** This is a retrospective observational study conducted from October 2016 to September 2017 after the initiation of CTG training in maternity unit at Sultan Qaboos Hospital, Salalah. The study then, compared with a previous study done before the training in 2013 on how reliable CTG is in diagnosing fetal distress and effect on cesarean section rate. The training included CTG workshops and interactive case discussion sessions on weekly basis. Case notes of 124 women with term singleton pregnancies in labor that underwent emergency cesarean for suspected fetal distress based on CTG changes were reviewed. CTG changes observed in patients with previous scar were excluded. The following criteria were assessed incidence of emergency cesarean for suspected fetal distress based on CTG changes, and use of pathophysiology 'process' instead of 'pattern' in diagnosing fetal distress. Other associated factors like

meconium, fever, gestational age, intrauterine growth restriction, stage of labor, and whether the caring team members attended the training or not were all assessed. The adverse immediate neonatal outcomes in terms of Apgar score <7 at 5 minutes, umbilical cord PH <7.0, neonates requiring immediate ventilation, and neonatal intensive care unit admissions were all recorded on a specifically designed proforma in Microsoft Excel and analyzed. **Results:** Out of 6186 patients delivered during the study period, 1383 (22.3%) patients underwent cesarean section, 891(64.4%) were performed as emergency cesarean section. Out of the emergency cesarean section, 124 (13.9%) patients underwent cesarean section during labor primarily for suspected fetal distress. In a 2013 study, out of 2909 patients delivered during the study period January to July, 586(20.1%) patients underwent cesarean section, 396(67.5%) were

performed as emergency cesarean section. Out of 396, 109 (27.5%) patients underwent cesarean section during labor primarily for suspected fetal distress. The data collected showed a decreasing trend in number of cesarean section due to fetal distress in the months following the training. Obstetrician and midwives who attended multiple training courses showed better competency in describing CTG features using fetal pathophysiology instead of the pattern observed. **Conclusions:** Understanding pathophysiological concepts behind CTG features helps achieving high competency in intrapartum CTG interpretation and may help reducing unnecessary interventions without delaying appropriate action on hypoxic CTG. Therefore, at least annual training in physiology-based CTG interpretation is recommended. **PS:** All the records were checked again to confirm the provided statistics.