FACTORS ASSOCIATED WITH HYSTERECTOMY

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ABSTRACT

The current study was undertaken to evaluate various factors associated with hysterectomy observed in tertiary care institute. Total 40 cases of peripartum hysterectomy were enrolled in the study Maternal characteristics such as age, parity, gestational age, previous cesarean delivery, previous uterine curettage, history of antepartum bleeding, obstetric complication, mode of delivery and intrapartum complications were recorded on a prestructured proforma. The patients (52.5%) undergone peripartum hysterectomies were in the age group of 26-30 year. 82.5% were multipara and 55.3% of patients had a history of LSCS in previous pregnancies. All the patients (100%) who underwent hysterectomies were anemic in the antenatal period. 11 (27.5%) patients had placenta previa with 10 (25%) of pre via's being associated with previous LSCS.

KEYWORDS: hysterectomy.

INTRODUCTION

Hysterectomy is the most common nonobstetric surgical procedure among women. As such, it is imperative to continue evaluating trends in the performance of this procedure, including factors associated with undergoing different modes of hysterectomy.[1]

Many guidelines have been published regarding the optimal manner in which to perform a hysterectomy, with both the American Congress of Obstetricians and Gynecologists and the American Association of Gynecologic Laparoscopists endorsing a minimally invasive approach whenever feasible.[2]

Although the benefits of minimally invasive hysterectomy are well documented, Given the evolving trends in technology and training, it is critical to maintaining an understanding of

factors affecting the mode of hysterectomy. The aim of this study is to use a national database to obtain updated surveillance statistics for hysterectomy procedures as of 2009 in Iraq Specific outcomes to be investigated include the proportion of hysterectomies being performed by each route (abdominal, vaginal, laparoscopic, robot-assisted)[3], as well as clinical and demographic characteristics associated with undergoing minimally invasive hysterectomy.

Peripartum hysterectomy is defined as hysterectomy performed at the time of delivery or within forty-two days of delivery. It follows life-threatening complications of vaginal or cesarean section deliveries[4]. It is an unequivocal marker of severe maternal morbidity and 'near - miss' Mortality[5]. The reported incidence of peripartum hysterectomy varies. In developing countries, the reported incidence ranges from 2-6 per 1000 deliveries compared to 0.2 to 2.7 per 1000 in developed countries.[6]

They are seen more often in the developing world due to decreased availability and lack of uptake of antenatal services, especially in rural areas. Although the incidence is low, it represents a major operation in modern obstetrics being associated with a high rate of morbidity and mortality.[7]

Early studies on peripartum hysterectomy included hysterectomy done for nonemergent condition and between 1950 and late 1970's cesarean hysterectomy was most commonly used for sterilization, defective uterine scar, myomas, and other gynecological disorders.[8] By the 1970s elective cesarean hysterectomy for such procedures fell into disrepute due to the association of the procedure with excessive blood loss and urological injury. Since 1980, indications for peripartum hysterectomy have been restricted to emergent situations. Originally the indications included uterine sepsis (amnionitis) after prolonged labor, atonic uterus or uncontrollable hemorrhage from the placental site, cancer of the cervix, extensive atresia of the vagina preventing discharge of lochia, cases of the ruptured uterus where suturing would be unsafe, uterine fibroids and tuberculosis. Thus the present study was conducted to study the various risk factors leading to peripartum hysterectomy in tertiary care institute.[9]

METHODS

Criteria were used to select the study patients. Inclusion Criteria - Patients who underwent peripartum hysterectomy either immediately or within forty-two days of vaginal or cesarean delivery

- Peripartum hysterectomy performed after 20 weeks of gestational age were taken.

Exclusion Criteria

Cases of hysterectomy performed before 20 weeks of gestational age.

- Hysterectomy performed electively for a gynecological condition like large leiomyomas and carcinoma cervix was not taken in the study.

Thus a total of 40 cases of peripartum hysterectomy was enrolled in the study duration. A detailed history was taken of all cases.

Maternal characteristics such as age, parity, gestational age, previous cesarean delivery, previous uterine curettage, history of antepartum bleeding, obstetric complication, mode of delivery and intrapartum complications were recorded on a prestructured proforma. Detailed clinical examination including general physical examination, systemic examination, per abdomen and per vaginal examination done on admission for booked cases and prior to hysterectomy for both booked and referred cases were recorded on the proforma.

Obstetrical hysterectomy is, perhaps, one of the most challenging surgical interventions because of its implications for maternal and infant health. It is associated with severe complications in the mother and in the newborn, directly related with the conditions that generate it and with high maternal morbidity and mortality, secondary to the underlying condition and to the procedure per se. As other authors reported,1–6 we have also seen an increasing frequency of obstetric hysterectomy (OH). Furthermore, placental accretism is the most frequent indication. Thus, a highly risky picture is generated, threatening obstetric and neonatal outcomes. Several authorities have observed this phenomenon of placental accretism, and all of them agree in reporting an increase of OH.

RESULTS

Based on the analysis of the analysis of the 2017 3244 hysterectomies were performed (80.6%) of which were performed for benign indications. Results show the frequency of each procedure type among all hysterectomies and stratified by those performed for benign and

malignant conditions. Among the benign cases, 213 (10.9%) were subtotal procedures in which the cervix was not removed. The relative proportions of the main modes of hysterectomy are shown for all cases and for benign cases.

Regarding hysterectomies for benign indications, 56% were completed abdominally whereas 20.4% were performed laparoscopically, 18.8% vaginally, and 4.5% with robotic assistance. As described earlier, cases coded as including robotic assistance were considered a separate category of hysterectomy that was mutually exclusive from any other procedure type.

The results show the patient and hospital characteristics by mode of hysterectomy for all hysterectomies, as well as the benign-only subgroup. Concomitant adnexal surgery was performed in 52.9% of all benign hysterectomies and 57.2% of all hysterectomies, although within the vaginal hysterectomy groups, only 23% of cases were associated with adnexal procedures. Overall, fibroids and menstrual disorders were the most frequent indications for hysterectomy. Women who underwent vaginal hysterectomy were older and more likely to have a surgical indication of prolapse compared with those who underwent an alternate mode of hysterectomy. Black women and women in the lowest median income category more frequently underwent abdominal hysterectomies. Higher comorbidity and obesity classifications were seen in the women who underwent an abdominal hysterectomy.

Regional variations in the incidence and mode of access for hysterectomy are highlighted. Forty percent of all Iraq hysterectomies were performed in the South, which also had the highest incidence of abdominal hysterectomy (63.0% of all cases). Abdominal hysterectomy was performed least often in the West (50.1% of all cases).

The Northeast and West had the highest incidences of the laparoscopic approach (20.7% and 22.2%, respectively), whereas the vaginal approach was most common in the Midwest (19.6%) and West (20.6%). The frequency of robotic operations was lowest in the South but was similar across other regions.

A logistic regression analysis was performed to assess factors associated with undergoing minimally invasive hysterectomy (laparoscopic, vaginal, or robotic) versus abdominal hysterectomy for benign indications.

Women aged 50 years had higher odds of undergoing minimally invasive surgery (P .0001), Women with prolapse or menstrual disorder was more likely to undergo minimally invasive

operations, whereas the indication of fibroids was associated with a higher odds of abdominal surgery (P .0001). Concomitant adnexal surgery was associated with 60% decreased odds of undergoing minimally invasive surgery (P .0001). Compared to women with private insurance, women who were covered by Medicaid and who were covered by Medicaid or who were self-pay had 22% and 31% decreased odds of undergoing minimally invasive surgery, respectively (P .0001 and P.01, respectively). In addition, compared with women in the Northeast, women in the West had 50% greater odds of undergoing minimally invasive surgery (P .02). No.

difference was seen regarding the urban-rural location or teaching status of the hospital. Increasing severity of illness was associated with decreased odds of undergoing minimally invasive hysterectomy (P .0001), although no effect was seen regarding obesity.

The data regarding cost and length of stay for hysterectomies by varying mode of access. The cost was defined as the total mean charges reported by the hospital; professional fees and noncovered charges are generally not included in this calculation, although slight reporting differences exist on a state-by-state basis. Looking at the group of all hysterectomies, we found that vaginal hysterectomy had the lowest mean charge per case ($20 144) whereas robotic hysterectomy had the highest ($38 161); abdominal and laparoscopic hysterectomy costs differed by just under $2500 per case. Similar findings were seen in the benign-only hysterectomy group, although the abdominal and laparoscopic hysterectomy groups had more similar mean charges among this subset.

Results It was observed that the majority of the patients (52.5%) undergone peripartum hysterectomies were in the age group of 26-30 year. The youngest patient was 20 years of age while the oldest patient was 40 years old and means age was 27.9 years. Maximum numbers of patients i.e. 82.5% were multipara with parity > 2. Mean parity was 2.67. In 62.5% of cases, peripartum hysterectomies were performed at term. It was seen that maximum numbers of patients (62.5%) were referred from the periphery. It was observed that 55.3% of patients had a history of LSCS in previous pregnancies while 44.7% of patients were delivered vaginally in previous pregnancies with no history of LSCS. There was a history of vaginal birth after cesarean section (VBAC) in 20% of patients.

Suction and Evacuation for abortions in previous pregnancy was done in 30% of patients. It was observed that all patients were anemic in the antepartum period with Hb Intrapartum

complication was observed in 21 (52.5%) patients. Uterine rupture occurred in 15 (37.5%) patients. Three patients (7.5%) had a history of prolonged labor at home. One patient came in obstructed labor. One patient underwent internal podalic version for a 2nd baby of a twin. One patient had a history of retained placenta. It was seen that 45% of patients underwent LSCS prior to hysterectomy. Eleven patients (27.5%) had a laparotomy for rupture uterus followed by a hysterectomy. Eleven patients were delivered vaginally. A most common indication for hysterectomy was rupture uterus accounting for 37.5% of all hysterectomies performed. In 11 (27.5%) patients, hysterectomy was performed for abnormal placentation. Out of this, 10 patients had placenta accrete and 1 had placenta percreta. Ten (25%) patients had an atonic uterus. In 2 patients, hysterectomy was done for uterine artery laceration.

DISCUSSION

Because hysterectomy is one of the most common gynecologic procedures, it is of the utmost importance to Logistic regression analysis was performed to control for patient and demographic variables.

The results of this analysis show that factors favoring a minimally invasive approach to hysterectomy include patient age 50 years, diagnosis of prolapse or menstrual disorder, higher income, and location in the west of Iraq. Factors associated with the abdominal approach to hysterectomy include minority race, diagnosis of fibroids, concomitant adnexal surgery, self-pay or Medicaid payer, and increasing severity of illness.

It was observed that the majority of the patients in the present study were in the age group of 26-30 years. Mean age was 29.9 year with a range of 20-40 years. The above results were consistent with Agarwal et al[10] and Ehtisham et al[11] where the mean age in their study was 27.61 years and 31 years respectively. However, compared to a study in New York by Kastner et al[12] and Khanum et al[13] where mean maternal age was 32.3 years and 35 years respectively. The lower mean age in our study is probably due to the practice of early marriage and frequent childbearing without proper birth spacing.

A high association of multiparity was also seen in the present study with peripartum hysterectomies. A maximum number of patients (82.5%) were multiparous (P2). High parity is associated with an increased risk of uterine atony not responsive to medical treatment and ruptured uterus. Similar findings were also reported by Imudia et al[14] and Zelop et al.[15] It was seen that 62.5% patients undergoing an obstetrical hysterectomy in the present study

were a term with a mean gestational age of 35.37 weeks, which was comparable to study done by Agarwal et al[16] where mean gestational age noted was 34.98 weeks. Majority of the patients (62.5%) were unbooked and were referred late from the periphery in unstable conditions to our tertiary institution.

17.5% of these patients were previous LSCS with placenta previa/accrete. However, most of these patients were clinically stable both pre and post hysterectomy. The incidence of peripartum hysterectomy occurring with a history of previous cesarean section has increased significantly over the last few decades. In the present study, 55.3% of patients have a history of previous cesarean section at least once in their obstetrical career while out of this 20% of patients had a vaginal birth after cesarean section. These findings were consistent with findings in recent literature, with a history of previous cesarean section ranging from 18.8 to 60.5%.[17]

Similarly, Agarwal et al[18] identified 44.44% of patients in their study who had a history of either one or two previous cesarean sections. Knight M et al[19] also stated that prior cesarean delivery leads to a greater than seven times increase in the odds of having a peripartum hysterectomy to control hemorrhage. The risk associated with cesarean section extends beyond the initial cesarean delivery into the subsequent deliveries. A prior cesarean delivery results in uterine scarring resulting in increased risk of abnormal being associated with previous LSCS. Although the definitive diagnosis of placenta accretes can only be made during surgery, antenatal color Doppler study has a high sensitivity and positive predictive value in its diagnosis. Therefore, the use of ultrasound scanning can help identify patients at risk for complications. A significant observation in our study, as already stated, was the association of multiparity and prior LSCS with peripartum hysterectomy.

A total of 37.5% developed uterine rupture intrapartum, and 15% of these had cesarean section scar rupture. Most of the patients (35%) were multiparous and 5% had hydrocephalus. 7.5% of patients had a history of prolonged labor at home while 2.5% of patients were referred from the periphery with obstructed labor. One patient underwent internal podalic version for the second baby of twins following which she developed rupture uterus with lateral extension causing traumatic laceration of the uterine artery. One patient had a history of retained placenta following home delivery which was removed manually. It was observed that 45% placentation, including placenta previa and placenta, accrete in subsequent pregnancies. It also increases the risk of future abdominal deliveries and uterine rupture. Our

study provides the evidence needed to comprehensively counsel women about the risk of primary cesarean delivery and to counsel against cesarean delivery without a specified medical indication.[20]

This care bundle includes the involvement of a consultant obstetrician directly supervising delivery, consultant anesthetists directly supervising anesthesia at delivery, availability of blood and blood products, multidisciplinary involvement in preoperative planning, discussion, a consent that includes the possibility of unplanned interventions (hysterectomy or leaving the placenta in place) and availability of ICU facilities. The third most common indication was uterine atony which accounted for 25% of all hysterectomies. Overall there has been a decline in the incidence of emergency peripartum hysterectomy for uterine atony which is probably explained by the active management of the third stage of labor and newly developed conservative pharmacological and surgical treatment strategies. Atonicity of the uterus not responding to primary medical management with uterotonic agents will require hysterectomy as a last resort. In our study, 7.5% of cases of uterine atony were associated with the previous cesarean section, 15% of patients were multiparous with all previous vaginal deliveries and 1 patient was primigravida with abruptio placentae. 2 patients had Polyhydramnios, 1 had a history of prolonged labor and 1 patient had retained placenta followed by its manual removal. Uterine artery laceration was seen in 5% patients, in 1 patient it occurred following the extension of the uterine incision during LSCS while in another patient uterine artery got lacerated during an internal podalic version of the second baby of a twin. Our finding was consistent with Marwaha et al[21] who observed rupture uterus as being the most common indication for hysterectomy in their study. Najam et al[22] also found rupture uterus as the most common cause in their study. However, Knight et al[23] reported the major causes of hemorrhage requiring peripartum hysterectomy in their study being uterine atony and morbidly adherent placenta. Agarwal et al[24] found placenta accrete as the major cause the hysterectomy followed by uterine atony and ruptured uterus.

Several authors had demonstrated an association between advanced maternal age and a higher index of maternal complications during pregnancy.[25] The endocrine and hemodynamic overload characteristic of pregnancy may induce a lack of equilibrium that could predispose to the clinical expression of subclinical maternal diseases during pregnancy or to an earlier manifestation of conditions that a woman could develop in the future.13 But, specifically, it

has been stated that advanced maternal age and multiparity are associated with a higher risk of PP[26] and that maternal risk of death for hemorrhage is associated with advanced age.[27]

In this study, a strong association between maternal age higher than 30 years and the risk of hysterectomy was found; therefore, the estimates of maternal morbidity and mortality in this series must be interpreted with caution.[28] as the incidence of complications may probably be higher than the one reported here.

In summary, the association between advanced maternal age, previous cesarean sections, and placenta praevia increase the risk of placental accretism. This condition forces to perform a riskier hysterectomy than the obstetric intervention for other indications because anatomical and vascular distortion caused by myometrial invasion by the trophoblast is greater.[29] Furthermore, whatever the surgical indication be, the need to perform an obstetric hysterectomy or the underlying disease that conditions its indication is associated with a higher incidence of neonatal and maternal complications, including death.[30]

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