Rate and profile of caesarean hysterectomies at three tertiary care hospitals, Tabuk, Saudi Arabia 2011-2015

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ABSTRACT

Background: A cesarean hysterectomy is very different from a non-pregnant hysterectomy from a technical point of view. Most cesarean hysterectomies are unplanned today after more conservative measures have failed. Objectives: To estimate the rate of performing caesarean hysterectomy as well as to describe its profile at Tabuk tertiary care hospital throughout the period 2011-2015. Material and Methods: This is a retrospective cohort study including all women underwent Cesarean hysterectomy throughout the period January 2011- December 2015 at three tertiary care hospitals in Tabuk City, Saudi Arabia. All deliveries carried out at these hospitals were polled up. Medical records of these patients kept at Obstetrics and Gynecology departments were reviewed. Results: 53 cases of cesarean hysterectomy were identified out of 65088 registered deliveries at the involved hospitals throughout the period January 2011- December 2015 with an overall rate of 0.81 per 1,000 deliveries. The primary indications for cesarean hysterectomy were placenta previa (36 of 53; 71.7%), placenta accrete (35 out of 53; 66%) and intrapartum hemorrhage (26 out of 53; 49.1%). Intra-operative complications reported were bladder injury (23 out of 53; 43.4%), and injury of the ureters (2 out of 53; 3.8%). Blood transfusion was reported among 36 patients representing almost two-thirds of cases (67.9%). Post-operatively, four cases were admitted to intensive care unit ICU (7.5%) whereas no cases of death were reported. Conclusion: The rate of performing cesarean hysterectomy at three tertiary care hospitals in Tabuk is amongst the lower rates worldwide. Prognosis is satisfactory with low rates of ICU admission and no mortality.

Keywords: Cesarean; hysterectomy; placenta previa; placenta accrete; mortality

INTRODUCTION

Cesarean hysterectomy is considered as a lifesaving procedure, for massive hemorrhage and needs highly experienced surgical team (Birsner et al., 2013).

It differs technically from a non-pregnant hysterectomy. It is considered as a challenging process as a result of the anatomic and physiologic changes induced by pregnancy, the tissues are very friable, the uterus and uterine vessels are very enlarged, and there is no vaginal preparation (Nichols, 1993). Also, the surgery's dramatic circumstances since it is mostly performed in unplanned situations when a mother's life is in a threat and also because it permanently ends the possibility of future pregnancy (Rock and Jones, 2003).

The incidence of the procedure is 1 in 950 to 1 in 1850
deliveries (Cunningham et al., 2005). The same principles for an abdominal hysterectomy in the non-pregnant state is applied for cesarean hysterectomy (Gabbe et al., 2002).

Blood transfusion is needed in nearly 100% of women undergoing a cesarean hysterectomy (Carvalho et al., 2012). Because intra-operative bleeding and urologic injuries are less, subtotal hysterectomy (supracervical) is preferred in inexperienced hands ((Nichols 1993: (Rock and Jones, 2003).

With the increase in the number of women who have had a cesarean section, there is a concomitant increase in the number of cesarean sections that are technically challenging, those with a plentiful scar tissue, previas, accretae, ruptured uteruses, and hemorrhage requiring a cesarean hysterectomy (Cunningham et al., 2005). Most cesarean hysterectomies are unplanned today after more conservative measures have failed.

The early recognition of patients at risk for proper assessment and intervention could substantially reduce the complications in the cesarean hysterectomy; no researchers have studied the profile of cesarean hysterectomy in Tabuk, Saudi Arabia. Thus we conducted this research to estimate the rate of and describe the overview of Cesarean hysterectomies carried out at Tabuk tertiary care hospitals throughout the period 2011-2015.

**Patients and methods**

This is a retrospective cohort study including all women underwent Cesarean hysterectomy throughout the period January 2011- December 2015 at tertiary care hospitals in Tabuk City, Saudi Arabia; King Salman North West Armed Forces Hospital, King Khaled Hospital, and maternity hospital. All deliveries carried out at these hospitals were polled up.

Medical records of these patients kept at Obstetrics and Gynecology departments were reviewed, and a data collection sheet was prepared and included data regarding age, parity, number of previous cesarean sections, key indicators for cesarean hysterectomy (Intrapartum hemorrhage, Placenta Previa, and Placenta accrete), history of blood transfusion, intraoperative complications (Bladder injury, ureter injury, bowel injury), ICU admission and death.

The Statistical Package for Social Sciences (SPSS) was used for data analysis; the chi-square test was used to compare categorical data. A P-value <0.05 was considered significant. The rate of Cesarean hysterectomy conduction throughout the period January 2011- December 2015 was computed by dividing the number of Cesarean hysterectomies by the total number of deliveries. The ethical committees of the Medical College, and the local Hospitals approved the research.

**RESULTS**

Throughout the study period (2011-2015), 53 cases of cesarean hysterectomy were identified out of 65088 registered deliveries at the involved hospitals throughout the period January 2011- December 2015. Thus, an overall rate of performing cesarean hysterectomy was 0.81 per 1,000 deliveries.

Their ages ranged between 24 and 45 years with a mean of 36.06±4.83 years. Their parity ranged between two and 14 with a median of 5.

The number of previous cesarean sections ranged between one and three among almost half of them (47.2%) whereas it exceeded three among 45.3% of them. Figure 1

The primary indications for cesarean hysterectomy were placenta previa (38 of 53; 71.7%), placenta accrete (35 out of 53; 66%) and intrapartum hemorrhage (26 out

![Figure 1. Previous cesarean sections among cases of cesarean hysterectomy.](image_url)
Table 1. Profile of Cesarean hysterectomies at Tabuk tertiary care hospitals 2011-2015

<table>
<thead>
<tr>
<th>Character</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intrapartum hemorrhage</td>
<td>26</td>
<td>49.1</td>
</tr>
<tr>
<td>Placenta previa</td>
<td>38</td>
<td>71.7</td>
</tr>
<tr>
<td>Placenta accreta</td>
<td>35</td>
<td>66.0</td>
</tr>
<tr>
<td>Primary caesarean section</td>
<td>4</td>
<td>7.5</td>
</tr>
<tr>
<td>Blood transfusion</td>
<td>36</td>
<td>67.9</td>
</tr>
<tr>
<td>Bladder injury</td>
<td>23</td>
<td>43.4</td>
</tr>
<tr>
<td>Bowel injury</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Ureter injury</td>
<td>2</td>
<td>3.8</td>
</tr>
<tr>
<td>ICU admission</td>
<td>4</td>
<td>7.5</td>
</tr>
<tr>
<td>Death</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Table 2. Factors associated with bladder injury among cases of Cesarean hysterectomy.

<table>
<thead>
<tr>
<th>Bladder injury</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (n=23)</td>
</tr>
<tr>
<td>Placenta previa</td>
<td>18 (47.4)</td>
</tr>
<tr>
<td>No (n=15)</td>
<td>5 (33.3)</td>
</tr>
<tr>
<td>Placenta accrete</td>
<td>20 (57.1)</td>
</tr>
<tr>
<td>No (n=18)</td>
<td>3 (16.7)</td>
</tr>
<tr>
<td>Previous CS</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>None (n=4)</td>
<td>13 (52.0)</td>
</tr>
<tr>
<td>1-3 (n=25)</td>
<td>10 (41.7)</td>
</tr>
</tbody>
</table>

* Fischer exact test  **chi-square

of 53; 49.1%). Intra-operative complications included bladder injury (23 out of 53; 43.4%), and ureter injury (2 out of 53; 3.8%). Blood transfusion was reported among 36 patients representing almost two-thirds of cases (67.9%). Post-operatively, four cases were admitted to intensive care unit ICU (7.5%) whereas no cases of death were reported. Table 1.

Table 2 showed a significant association between history of placenta accrete and bladder injury as 57.1% of cases presented with placenta accrete compared to 16.7% of those presented without placenta accrete had bladder injury, p=0.005. Also higher cases presented with placenta previa had bladder injury compare to those without placenta previa (47.4% versus 33.3%). However, the difference was not statistically significant. Similarly, having more previous CS was accompanied with a higher rate of bladder injury; however this did not reach a statistically significant value.

**DISCUSSION**

In the present study, placenta previa was the commonest indication for cesarean hysterectomy and those with placenta accreta were more likely to develop bladder injury. The reported incidence of emergency caesarean hysterectomy varies from 0.24 to 5.09 per 1,000 deliveries in the literature (Carvalho et al., 2012). The current study reported an overall rate of cesarean hysterectomy of 0.81 per 1,000 deliveries. Our figure is consistent with some of the previously published literature (Sarah et al., 2012; Mousa and Walkinshaw, 2001; Glaze et al., 2008; Naz et al., 2008; Nisar et al., 2009; Kwame-Aryee et al., 2007). A higher rate has been observed in Pakistan (4.58/1000 deliveries), (Perveen et al., 2012) and in another study carried out by Zeteroglu et al who reported A rate of 5.09/1,000 deliveries (Zeteroglu et al., 2005). However very low rate has been reported in another study carried out in Portugal (0.41/1000 deliveries), (Carvalho et al., 2012).

The experiences and clinical practices of different obstetricians, as well as various levels of sophistication in obstetric health care, could be a plausible explanation for the difference in the rate of cesarean hysterectomy. There are no definite guidelines regarding the stepwise use of conservative measures before performing a caesarean hysterectomy (Carvalho et al., 2012). Another possible factor for high incidence in some studies is the presentation of most patients with terminal health conditions where delaying the decision for hysterectomy
while providing conservative treatment will not be appropriate as it increases the risk for further blood loss and maternal mortality (Rossi et al., 2010). In current study, a relatively low rate could be explained by the provision of good antenatal care, adequate training, early referral for high-risk cases especially with the previous cesarean section, use of imaging techniques to diagnose placenta previa and morbidly adherent placenta, and restricting hysterectomy for emergent situation only.

In the present study, the mean age of patients was 36.06±4.83 years and parity ranged between two and fourteen with a median of five. A survey carried out in Portugal (Carvalho et al., 2012) concluded that the majority of patients were in age group ≥35 years and were multipara. Comparable findings also reported in a study carried out by (Amad and Mir, 2007).

The previous cesarean section as a risk factor was reported among the majority of cases in the current study. This finding agrees with previous studies (Carvalho et al., 2012; Lau et al., 1997).

Placenta praevia and placenta accrete were the leading indicators of caesarean hysterectomy in the present study. A study from London hospital revealed that placenta praevia was the main indication for caesarean hysterectomy (Selo-Ojeme et al., 2005).

Cesarean hysterectomy is associated with high complication rates, particularly bladder rupture (43.4%). This rate is very high compared to findings from other studies; (Kwee’s et al., 2005) (15%): (Yucel et al., 2006) (8.8%), and Carvalho (7.7%) (Carvalho et al., 2012). It has been documented that urological injuries are attributed to scarring and secondary adhesion of the vesicouterine space following previous cesarean section. In the present study, placenta accrete was significantly associated with higher rate of bladder injury. Also, placenta previa and previous CS were accompanied with higher, although not significant, rates of bladder injury. Almost two-thirds of our patients received blood transfusions. Similarly, all patients in a study carried out in Portugal received blood transfusion (Carvalho et al., 2012).

No deaths were reported in the present study. Other studies reported low maternal mortality rates; (Carvalho et al., 2012) (7.7%) (Kwee et al., 2005) (4%) and Zorlu et al., (1998) (4.5%). Zero mortality rate reported in the current study may be related to a high rate of antenatal follow-up and proper obstetric intervention in at-risk cases in Tabuk.

Conclusively, although the rate of cesarean hysterectomy is relatively low in the present data, risk factors should be recognized antenatally, and the high-risk group of women should be delivered by skilled staff following a defined protocol of action. Also, cesarean delivery should be performed only when exclusively necessary and should be conducted in appropriate clinical settings and by an experienced physician, particularly when women with risk factors were identified.

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REFERENCES


