Research Article

Gynecology & Reproductive Health

Caesarean Scar Pregnancy – Case Series

Gujral Kanwal[1*], Mansukhani Chandra[2], Chawla Deepak[3] and Nayar Sakshi[4]

[1]*Co-chairperson, Institute of Obstetrics and Gynaecology, Sir Ganga Ram Hospital, New Delhi, India.*

[2]*Senior consultant, Institute of Obstetrics and Gynaecology, Sir Ganga Ram Hospital, New Delhi, India.*

[3]*Chairperson, Department of Ultrasound, Sir Ganga Ram Hospital, New Delhi, India.*

[4]*Senior Resident, Department of Obstetrics and Gynaecology, Lady Hardinge Medical College and Smt. S.K. Hospital, New Delhi, India.*

[*]Correspondence:
Kanwal Gujral, Clinic for Women, 18/22, Old Rajinder Nagar Market, New Delhi – 110060, India, Tel: +91-9811017635, E-mail: kgg_in@yahoo.com.

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ABSTRACT

Introduction: *Caesarean scar pregnancies (CSPs) are on the rise parallel to increasing caesarean section rates. Management of CSP lacks consensus. We report here our experience of treating nine CSPs in a single unit with medical management followed by suction evacuation.*

Materials and Methods: *All cases of CSPs had pre-treatment serum beta human chorionic gonadotropin (βhCG). If embryonic cardiac activity was present, Potassium Chloride (KCl) 0.3 to 0.5 ml was injected intracardiac under ultrasound guidance transvaginally. This was followed by intramuscular methotrexate alternating with follinic acid (methotrexate day 1,3,5,7 and follinic acid day 2,4,6,8). If embryonic cardiac activity was absent, only methotreaxate along with follinic acid was used in the same manner. Serum βhCG was measured on day 5,7,14 and thereafter fortnightly. At fall of 15% of previous level, methotrexate was stopped. At βhCG level of ≤200 mIU/ml suction evacuation was done. Note was made of hemorrhage requiring blood transfusion/tamponade/surgical management. Complete cure was defined as successful suction evacuation, or spontaneous resolution of mass and no complications.*

Results: *Mean gestational age of entire cohort was53.44 days (r43-70). Mean βhCG level was 63484.2mIU/ml (r 12275-91970 mIU/ml). Embryonic cardiac activity was present in six out of nine cases. Four doses of methotrexate were required in two patients, three doses in five, two doses in two patients.*

By day 14, all patients had a significant fall in βhCG level (p=0.008). By day 60th, all patients had βhCG level of ≤ 200 mIU/ml. Regarding outcome, suction evacuation was required in 7 patients, one had spontaneous resolution. One case had significant hemorrhage at suction evacuation which was successfully managed with balloon tamponade. One case required emergency hysterectomy. Both these cases required blood transfusion. No patient experienced any adverse effects of methotrexate.

Overall success rate was 77.78% (7 out of 9 cases) and the complication rate of 22.22% (2 out of 9 cases).

Conclusion: *Medical management followed by suction evacuation is a reasonable option for treating CSPs.*

Keywords
Caesarean scar pregnancy, Scar pregnancy, Ectopic pregnancy.

Introduction
The first case of caesarean scar pregnancy (CSP) was published by Larsen et al in 1978 [1]. The current reported incidence is 1:1800 to 1:2226 of all deliveries or 0.15% of all women with previous caesarean section or 6% of all ectopic pregnancies with previous caesarean section [2,3]. Although many large reviews [2,4-7], on published series have given an insight into clinical presentation, diagnosis, management, and complications yet best management is still unclear. We report here our experience of dealing with 9 cases of CSP with a predefined protocol involving medical as well as surgical management.

Material and Methods
Nine cases of CSP were treated over a period of two and half years (May 2014 to January 2017) under a single unit. CSP was diagnosed by ultrasound- gray scale 2D/3D on findings of empty cervical canal, no fetal part in uterine cavity, enlarged hysterotomy scar, absence of myometrium between gestational sac and bladder or discontinuity of anterior uterine wall. Doppler was added to see the perfusion of sac. Protocol involved a haemodynamically stable patient, informed consent and measurement of pretreatment serum beta human chorionic gonadotrophin (βhCG) level (Figure 1). If embyonic cardiac activity was present, 0.3 to 0.5 ml of potassium chloride (KCl) was injected intracardiac under ultrasound guidance transvaginally. General anesthesia was used for the procedure. Absence of cardiac activity was confirmed after about 5 to 10 minutes and the next day. This was followed by intramuscular injection of methotrexate 50mg alternating with follinic acid 7.5mg (methotrexate day 1, 3, 5, 7 and follinic acid day 2,4,6,8). If embryonic cardiac activity was absent only methotrexate along with follinic acid was given in the same manner.

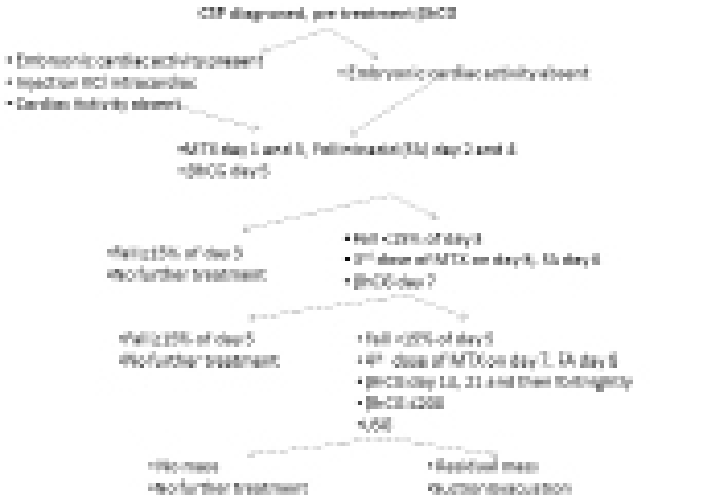

Figure 1: Study protocol.

Serum βhCG was repeated on day 5. If the level decreased by 15% of pretreatment level no further methotrexate was given. In the event of βhCG not decreasing by 15% on day 5, third dose of methotrexate was given along with follinic acid on day 6. On day 7, βhCG was repeated. If the level fell by 15% of day 5 level, no further injections were given. Upon failure of βhCG to fall by 15% on day 7, last dose of methotrexate was given followed by follinic acid on day 8. βhCG level was re-measured on day 14. It was planned that if after completion of 4 doses of methotrexate, day 14 level did not decrease by 15% of day 7 level or the level increased or it plateaued, surgical management would be considered. Serial complete blood counts, liver function tests, sign symptoms of methotrexate toxicity were looked for during the entire course of therapy. All cases were initially hospitalized for intracardiac injection and/or methotrexate therapy. Once a fall of 15% of βhCG was observed patients were treated on outpatient basis. All cases

Case	Age (Yr)	Obstetric History	No. of previous LSCS	Other previous surgeries	GA (days)	Cardiac Activity	Beta hCG	Treatment	Blood transfusion	Complication
1	33	P2 L2 A1	2	D & C -1	56	Present	91970 mIU/ml	KCl + MTX 3 doses, planned SE	No	None
2	32	P1 L1A2	1	D & C -2	58	Absent	85330 mIU/ml	MTX 2 doses, planned SE	No	None
3	32	P2 L2	2	Nil	49	Present	74270 mIU/ml	KCl+MTX 3 doses, emergency SE	2	Haemorrhage at SE, Balloon temponade
4	30	P1 L1	1	Nil	70	Present	75000 mIU/ml	KCl + MTX 3 doses planned SE	No	None
5	36	P2 L2	2	Nil	56	Present	21000 mIU/ml	KCl+ MTX 1 dose planned SE	No	None
6	31	P1 L1	1	Nil	69	Present	61540 mIU/ml	KCl+MTX 3 doses Planned SE	No	None
7	34	P2 L2	2	Nil	43	Present	67107 mIU/ml	KCl + MTX 3 doses	2	Emergency hysterectomy for heavy bleeding
8	32	P2 L2	2	D & C -2	44	Absent	12275 mIU/ml	MTX 4 doses spontaneous resolution	No	None
9	33	P3L3	3	Nil	54	Absent	82886 mIU/ml	KCl + MTX 4 doses	No	None

Table 1: Clinical details and outcome.

were followed up with serial βhCG weekly or fortnightly. Once βhCG levels were ≤200 mIU/ml, ultrasound was done to see for residual mass. In the event of persisting residual mass, suction evacuation under ultrasound guidance was done under general anesthesia.

Note was made of hemorrhage requiring blood transfusion/ tamponade/surgical management. Complete cure was defined as successful suction evacuation, or spontaneous resolution of mass and no complications.

Results

Nine cases were treated over a period of 2 ½ years out of 1920 deliveries during this period. Clinical details and follow-up of patients is depicted in table 1.

Mean age of study cohort was 32.6 years (r 30-36). Five patients had two previous caesarean sections; three had one previous caesarean section whereas one had three previous caesarean sections. Mean gestational age was 53.44 days (r 43-70). Mean βhCG was 63484.2 mIU/ml (r 12275-91970mIU/ml). Embryonic cardiac activity was present in six out of nine cases. Four doses of Methotrexate were required in two patients, three doses in five, two doses in two patients.

Table 2 and figure 2 depict βhCG level over days. By day 14, all patients had a significant fall in βhCG level (p=0.008). By day 60th, all patients had βhCG level of ≤200 mIU/ml. Regarding outcome, suction evacuation was required in 7 patients, one had spontaneous resolution. One case had significant hemorrhage at suction evacuation which was successfully managed with balloon tamponade (Figure 3). One case required emergency hysterectomy. Both these cases required blood transfusion (Table 1).

No patient experienced any adverse effects of methotrexate. Overall success rate was 77.78% (7 out of 9 cases) and the complication rate of 22.22% (2 out of 9 cases).

Discussion

Caesarean scar pregnancies are on the rise parallel to increasing caesarean rates [7]. Choosing a correct modality of treatment is a herculean task because optimal management lacks consensus. Largest review of 176 articles, 751 cases has described 31 primary

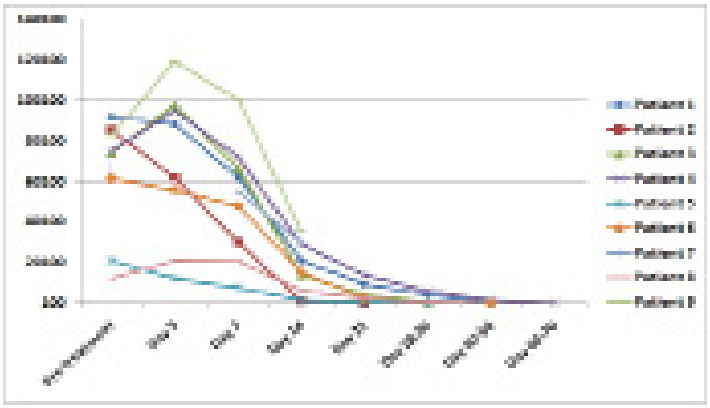

Figure 2: βhCG level over the days.

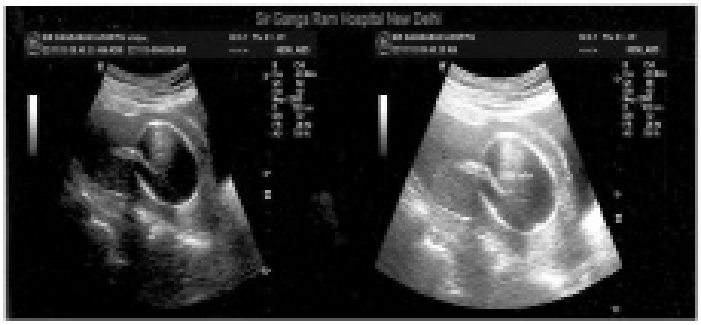

Figure 3: Foleys Balloon Tamponade.

treatment modalities involving medical, surgical, radiological approaches either alone or in combination [7]. Basic aim of treatment is prevention of life threatening hemorrhage, preservation of fertility and menstrual function since majority of the women with CSP would be in the reproductive age group.

From the experience of fetal reduction and medical management of tubal pregnancies it seems logical to utilize these modalities for CSP management as well. Systemic methotrexate alone as first line of management modality for CSP has variable success rates with a complication rate upto 60% [2,3,7-10]. One reason for low success rates could be that the effect of methotrexate on embryonic cardiac activity takes a long time or it may not be able to stop cardiac activity at all. During this long latent period placental growth is bound to occur. Intrasac injection of feticide agent (KCl or Methotrexate) either alone or along with systemic methotrexate would lead to quicker resolution, faster action, better success rates

S. No	Pre treatment	Day 5	Day 7	Day 14	Day 21	Day 28-30	Day 40-50	Day 60-70
1	91970	88610	62000	21320	9720	4500	121	
2.	85330	62352	30132	1172	146			
3.	74270	97882	66817	13892	4384	857		
4.	75000	95000	72000	29230	14000	6000	1506	200
5.	21000	12300	8000	1500	600	250		
6.	61540	56000	48000	15600	2730	-	140	
7.	67107	-	55000	30000				
8.	12275	21000	20566	6594	2350	680	90	
9.	82886	119028	100638	35483			54	

Table 2: βhCG levels over the days.

and lower complication rates [7,11-14].

We thus hypothesized that the combination of feticide and systemic methotrexate in live CSP pregnancies and systemic methotrexate alone in CSP with absent cardiac activity would work. We also felt that it would be logical to do suction evacuation if there is persistence of mass at near normalization of βhCG.

Mean gestational age of our cases was 53.44 days (r 43-70) and mean βhCG was 63484.2 mIU/ml (r 12275-91970mIU/ml). Few studies have highlighted that certain factors are associated with successful methotrexate therapy vis gestational age <8 weeks, absent embryonic cardiac activity and most importantly βhCG level <20000 mIU/ml [2,5,15,16].

Our success rates did not indicate so (Table 1). By day 14 all patients had significant fall of βhCG level (p=0.008) (Table 2, Figure 2). Therefore initial high levels of βhCG should not deter us from using this conservative approach. Also, number of methotrexate doses was not related to response rates. Two patients required four doses of methotrexate, βhCG level in one patient was 12277 mIU/ml and in the other was 82660 mIU/ml. However, two patients who had hemorrhage, embryonic cardiac activity was present in both. Case No. 3 had haemorrhage at suction evacuation, which was controlled by balloon tamponade. Case No.7 was a defaulter, missed day 5 methotrexate, which was given on day 7. There was a significant fall of βhCG on day 14 (>15%). Despite this, she presented with acute hemorrhage and required hysterectomy. We are unable to explain this.

Overall success rate was 77.78% (7/9) and a complication rate of 22.22% (2/9), which is in sync with other studies [5,9,13,14,16]. It is a well-known fact that surgical excision and repair – Hysteroscopic / Laparoscopic has higher success and low complication rates [7-8]. These modalities require expertise and may also not be cost effective.

A very recent report by Timor-Tritsch et al has described a novel approach for treating CSPs. In seven live CSPs, gestational age 6-8 weeks, the authors have used double balloon catheter, one in uterine cavity and one at the site of CSP under USG guidance. By shear pressure the cardiac activity disappeared and CSP gradually got absorbed. The reported success rate was 100%. This method sounds promising, avoids risk of methotrexate toxicity, is minimally invasive and cost effective [17].

Conclusion

Medical management followed by suction evacuation is a reasonable option for treating CSPs.

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