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Management Options of Caesarean Scar Ectopic Pregnancy: A Retrospective Cohort Study

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Abstract
Background: *Cesarean scar pregnancy is an increasing challenge worldwide. Caesarean scar pregnancies are a rare obstetric complication, resulting from implantation of an embryo on previous cesarean scar, but there has been a surge of reports in the medical literature in the past decade, prompted by the increase in occurrence secondary to the seemingly inexorable rise in caesarean deliveries.. It can be devastating because of complications such as uterine rupture and massive hemorrhage, leading to increased maternal morbidity and mortality.*
Objective: *To identify the clinical presentations, determinants of management and management outcomes in presenting our experience with this condition over a 5-year period in Ain Shams University maternity hospital.*
Patients and Methods: *This is a retrospective study of a case series of 30 pregnant women between 6 and 10 weeks, referred to department of obstetrics and gynecology of Ain Shams University Maternity Hospital within the period of 5 years from January 2014 to December 2018 with a diagnosis of CSP. All patients diagnosed with CS ectopic pregnancy were included in the study. Patients included had been diagnosed with Cesarean scar ectopic pregnancy between 4-9 weeks from LMP. Age of the patients 18-40 years old. Previous 1cs at least*
Results: *Our study demonstrated that there is a significant decrease of BhCG in all management strategies used along the study with best success rate with suction evacuation with systemic Methotrexate and with balloon, and with Laparotomy.*
Conclusion: *The present study demonstrated that the correct diagnosis and the personalized evaluation of risk factors could support physicians in making the best choice in terms of safety and efficacy, there's no consensus on the preferred treatment modality for CSP; proper assessment and individualization of treatment is the key for best results with the least risk of complications.*

Keywords: *Caesarean section, cesarean section scar pregnancy, abnormally invasive placenta*

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I. Introduction

Caesarean section is the delivery of the fetus through an abdominal incision in the abdominal wall (laparotomy) and uterine wall (hystorotomy) this definition does not include the removal of fetus from abdomen in ectopic abdominal pregnancy or ruptured uterus. It is one of the most commonly performed major operations in women throughout the world (1).

Caesarean section (CS) is considered as a life-saving intervention for women and newborns when complications occur, such as abnormal fetal presentation, fetal distress, hypertensive disease and antepartum hemorrhage.

CS use has increased during the past 30 years to a frequency in excess of the proportion of 10–15% of births that is thought to be optimal [(2, 3)] it even became the most common major surgical intervention in many countries [(4)].

This increase in use has been driven by major increases in non-medically indicated CS in many middle-income and high-income countries [(2, 3)]. However, use of CS in more than 20% of births didn't show any perinatal or neonatal improvement in outcomes in a population [(3)].

By contrast, many low-income and middle-income countries still use CS for less than 10% of births in the overall population, which is considered to be indicative of inadequate access to medically indicated CS [(2,5)]. Large variation in CS use have been observed between births in the richest and poorest the wealth quintiles within many low-income and middle-income countries [(6)].

Being an important and leading intervention, doesn't make CS is the only intervention.

Prevalence of the obstetric problems and the capacity of the health facility are the factors that determine the optimal CS frequency to implement high-quality obstetric interventions.

The current high frequency of CS use is of concern for medical education, a big problem arose which is that young medics have become experts in CS but are losing the wider art of obstetrics and vaginal assisted deliveries. In order to provide quality support, for both un complicated birth as well as emergency care, staff must be supported to develop the skills required for that.In all parts of the world there is strong evidence of overuse of CS (ie, beyond what is medically necessary).Cultural perceptions and myths have a role in women choosing birth by CS.

Most women who prefer a CS perceive it to be safer for themselves or for their baby [(3)].Previous negative experiences of vaginal birth and of care are also influences however, many factors related to women's families, community, and the broader society, also factors related to health care system characteristics, culture and finances, and health professionals are the drivers of high and increasing use of CS.Other factors for women to demand CSs without medical indications include fear of labour effects such as pelvic floor damage or fear of labour pain, or of reduced quality of sexual functioning,or of urinary incontinence,.Further, the physician or obstetrician is often central to the choice of delivery mode. The demands of women, Logistical and financial incentives, fear of litigation, are factors with which health-care providers contend. Society in general, particularly the legal profession, might believe that CSs are protective, contrary to scientific evidence.Further information on the need for and use of CS by possible medical indication [(7, 8)] is provided by Robson classification.

The Robson system classifies women giving birth in health facilities into ten groups on the basis of their obstetric characteristics (parity, fetal presentation, gestational age, previous CS, number of fetuses and onset of labour). Groups 1 and 2 comprise nulliparous women who begin labour at or after 37 weeks with cephalic, singleton fetuses; groups 3 and 4 comprise multiparous women who begin labour at or after 37 weeks, without a uterine scar, with singleton, cephalic, fetuses; group 5 comprises women who begin labour at or after 37 weeks, with singleton, cephalic, fetuses with a uterine scar; group 6 comprises all nulliparous women with singleton breech; group 7 comprises all multiparous women with singleton breech, including those with uterine scar; group 8 comprises all multiple pregnancies with other abnormalities, including women with a uterine scar; group 9 comprises all women with a singleton pregnancy with other abnormalities, including women with a uterine scar; and group 10 comprises all women who begin labour at or before 36 weeks (preterm births), including those with a uterine scar, with singleton, cephalic fetuses.

The size of each group and the frequency of CS use within each group correspond to an expected range. Monitoring CS use within the Robson groups therefore allows an assessment of clinical practice, including the extent to which the frequency of CS use can be justified.Unforeseen consequences of increasing rate of cesarean section deliveries: Early placenta accreta and Cesarean scar pregnancy CD has some classical long-term complications such as uterine rupture, placenta previa, Pathologically adherent placenta in a subsequent pregnancy, Intra- abdominal adhesions, ectopic pregnancy and infertility.CDs is one of the main causes of increasing incidence of pathologically adherent placentae (accreta-increta and percreta) [(9)].Diagnostic approach as well as the obstetric (surgical) management of this pregnancy complication did fundamentally change with this drastic increase in the number of patients with a potential PA.

Realization of the fact that most PA are implanted in the scar of the previous CD, knowledge of its natural history with early and reliable diagnosis, are slowly focusing attention to its first-trimester complications [(10)].Spontaneous rupture of the uterus and/or profuse bleeding because of implantation of the pregnancy in the hysterotomy scar of a previous cesarean delivery are dangerous consequences in PA in the first and early second trimester of pregnancy. Increase Cesarean scar pregnancy rate parallel to increase cesarean section Delivery rate.Cesarean section scar pregnancy (CSP), is another less well known and less studies consequence of CD.

This serious consequence of the increasing rate of cesarean deliveries is fundamentally different from a cornual and tubal as well as a cervical pregnancy, it is not a classical ectopic pregnancy.CSP has a sporadically used term "isthmic pregnancy "refers to gestational sac that has implanted in the scar or the niche of a previous cesarean delivery.The condition is relatively rare and has an unusually high complication rate, even there is a possible link between the pathogenesis of PA and of the CSP.For example it is obvious that the rupture uterus occurred due to and at the site of the CD scar. Striking similarities make these cases hard to classify as pure PA or for that matter,pure cases of CSP.

This may be another compelling reason to believe in the hypothesis of their common pathogenesis, at least in those with a history of previous CD.

The obstetrical and gynecologic community started to become aware of its unpredicted consequences, as a result of the mounting risk of the cesarean section delivery. This increased awareness is reflected in the steadily increasing number of articles dealing with the problems.

II. Aim of the Work

At Ain Shams University Hospital (ASUH), the biggest tertiary Obstetric and Gynaecology Hospital in Estern Cairo, Egypt, we anecdotally have observed an increase in the occurrence of CSPs over the past decade. The aim of this study is to identify the clinical presentations, determinants of management and management outcomes in presenting our experience with this condition over a ten-year period.

PATIENTS AND METHODS

This is a retrospective study of a case series of 30 pregnant women between 6 and 10 weeks, referred to department of obstetrics and gynecology of Ain Shams University Maternity Hospital within the period of 5 years from January 2014 to December 2018 with a diagnosis of CSP.

All clinical and demographic data were extracted from medical records of the patients.

The CSP was diagnosed by transvaginal ultrasound, based on diagnostic criteria reported by several authors [(11)].

The sonographic criteria used for CSP diagnosis included an empty uterine cavity with endometrium clearly seen, a gestational sac sited in the anterior portion of the uterine isthmus with an empty cervical canal, and the gestational sac surrounded by myometrium and separate from the endometrial cavity with peripheral circumferential vascularity.

III. Methods

Thirty cases of CSP were identified during the study period. The median maternal age was 31.50 years, with a median gravidity of 2 parity of 2. In 5 of 30 cases there was one prior caesarean section and ≥ 2 caesarean sections in 13 of 30.The median interval between the most recent caesarean section and the CSP was 3 years. The number of layers of uterine closure in the previous caesarean section was documented in most of the cases and all were two layers closure. The indication for the most recent caesarean section was documented in 25 cases, and in 5 cases the caesarean section was performed prior to the onset of labour. The specific indications were elective caesarean deliveries for breech presentation, failed induction of labour, intrauterine growth restriction, high head at term, non-reassuring fetal heart rate monitoring, maternal request and previous caesarean delivery. The median gestation at diagnosis was 7.1 weeks (range 4–10). The most common presenting symptom was mild vaginal bleeding with slight abdominal pain (Twenty of 30 cases, 66.7%). The diagnosis was not made at initial presentation to a health-care provider to most of the cases, and the early initial misdiagnoses were correctly diagnosed with ultrasound upon representation. They included two cases post-termination of presumed intrauterine pregnancies, one case at first trimester screening after an ultrasound diagnosis of a single live intrauterine pregnancy at ten weeks and one case after an ultrasound diagnosis of a cervical ectopic pregnancy.

The treatment modalities in our experience are as follows: Expectant management and follow up. Systemic methotrexate. Suction evacuation with or without ballon tamponade. Laparotomy. Local methortxate with or without systemic methotrexate. Suction Evacuation with systemic Methotrexate

Different management strategies for the 30 cases were used, varying between expectant management, medical therapy with systemic methotrexate, uterine Suction and curettage alone or combined with balloon or with Methotrexate and Laparotomy. 18 cases were treated with Suction evacuation, three cases treated medically with methotrexate. 3 cases were initially treated with systemic methotrexate, (all 1 mg/kg, from one to four alternate day doses) needed no further treatment. 3 cases had unsatisfactory falls in βhCG and were further managed with suction and curattage. The other 3 cases needed urgent laparotomy and 3 cases treated with suction with intrauterine ballon insertion.

The patient only one case was initially treated with suction curettage then due to severe bleeding she went on laparotomy with 2 units packed RBCs post operatively on HB 7g/dl.

Complications, like uterine rupture was treated with urgent laparotomy, profuse bleeding was treated by Foley catheter inflated with 30–40 cc in the isthmus region for 24 hours with antibiotic coverage.

The severe bleeding was considered when we observed a drop in hemoglobin (Hb) levels greater than 5 units and/or a reduction of hematocrit (Hct) percentage greater than 10%. In the presence of Hb levels below 6 mg/dl and/or Hct under 20%, if necessary, blood cell transfusion was administered

Statistical Analysis: Data collected throughout history, basic clinical examination, laboratory investigations and outcome measures coded, entered and analyzed using Microsoft Excel software. Data were then imported into Statistical Package for the Social Sciences (SPSS version 20.0) (Statistical Package for the Social Sciences) software for analysis. According to the type of data qualitative represent as number and percentage, quantitative continues group represent by mean ± SD, the following tests were used to test differences for significance;.. Differences between quantitative paired groups by paired t test or Sign. P value was set at <0.05 for significant results & <0.001

for high significant result. Data were collected and submitted to statistical analysis. The following statistical tests and parameters were used.

IV. Results

Table (1): Maternal age and GA distribution.

	Maternal age	Gestational age
Mean± SD	32.26±5.96	6.86±2.01
Median (Range)	31.50 (22-45)	7.0 (4-10)

Maternal age was distributed as **32.26±5.96** and GA was distributed **6.86±2.01.**

Table (2): Parity distribution.

		N	%
Parity	**One**	2	6.7
	2-4	27	90.0
	>4	1	3.3
Prior CS	**1.- 2**	17	56.7
	3-4	12	40.0
	>4	1	3.3
	Total	30	100.0

Table (3): Presenting complaint distribution.

		N	%
Presenting complain	**Mild abdominal pain**	3	10.0
	Mild vaginal bleeding	7	23.3
	Mild vaginal bleeding slight abdominal pain	20	66.7
	Total	30	100.0

Table (4): Cardiac activity distribution.

		N	%
Cardiac activity	-VE	24	80.0
	+VE	6	20.0
	Total	30	100.0

Table (5): Management distribution.

		N	%
Management	**Expectant management**	2	6.7
	laparotomy	3	10.0
	Local Methotrexate	3	10.0
	Suction & balloon	3	10.0
	Suction Evacuation	16	60.0
	Methotrexate +Suction Evacuation	3	10.0
Additional	**Laparotomy**	3	10.0
	No	24	80.0
	Suction evacuation	3	10.0
	Total	30	100.0

Table (6): Myometrial thickness and Sac diameter distribution.

	Myometrium thickness	Sac diameter
Mean± SD	5.06±1.31	9.29±4.12
Median (Range)	5.0 (2-6)	8.5 (1.8-20.6)

Table (7): Change assessment between Initial BHCG and post BHCG.

	Initial BHCG	BHCG	Sign	P
Mean± SD	8376.29±6845.6	4522.7±3897.6	2.84	0.009*
Median (Range)	2373.5 (631-42145)	1080.5 (135-35412)		

Significant decrease

Table (8): Change assessment in HB pre and post.

	Pre	Post	Paired t	P
HB	11.99±1.06	10.94±1.56	6.57	0.00**

Significant decrease

Table (9): Hospital stay distribution

	Hospital stay
Mean± SD	2.30±1.25
Median (Range)	2.0 (1-6)

Table (10): Need of blood transfusion.

		N	%
Blood transfusion	**No**	27	90.0
	Yes	3	10.0
	Total	30	100.0

10% needed blood transfusion

Table (11): Change assessment at each group.

Intervention		Mean	SD	Median	Range	Sign	P
Expectant management	**Initial BHCG**	17541.36	7214.98	17541.3	754-37505	53.54	0.00**
	BHCG post	159.65	35.69	150.6	135-214		
Suction Evacuation	**Initial BHCG**	7651.98	6396.7	1030	631-37587	2.59	0.019*
	BHCG post	3465.94	3156.5	234	135-18555		
Local Methotrexate	**Initial BHCG**	2387.0	185.65	2354	2207-2854	4.26	0.001**
	BHCG post	1216.6	40.26	1222	1174-1254		
Laparotomy	**Initial BHCG**	16420.33	10278.2	3574	3542-42145	5.87	0.00**
	BHCG post	14169.3	7396.69	3555	3541-21871		
Suction Evacuation+ syst. Methotrexate	**Initial BHCG**	8745.92	5874.6	7030	631-17587	8.69	0.00**
	BHCG post	3547.54	1587.6	2555	135-7545		
Suction & balloon	**Initial BHCG**	2541.0	165.62	2512	2207-2854	11.25	0.00**
	BHCG post	1145.6	52.69	1158	1174-1254		

Significant decrease in all management

V. Discussion

This is a retrospective descriptive study that was conducted at Ain Shams maternity hospital within the last five years from January 2014 till December 2018. Inclusion criteria included patients diagnosed with cesarean scar ectopic pregnancy between 4-9 weeks postmenstrual age, while exclusion criteria included hemodynamically unstable patients.

All files of patients with diagnosis of cesarean scar pregnancy admitted to Ain-Shams Maternity hospital were analyzed in regard to age, obstetric characteristic, gestational age, hemodynamic stability and protocol of treatment.

Different management strategies for the 30 cases were used, varying between expectant management, medical therapy with systemic methotrexate, uterine Suction and curettage alone or combined with balloon or with Methotrexate and Laparotomy.

Our study demonstrated that there is a significant decrease of BhCG in all management strategies used along the study with best success rate with suction evacuation with systemic Methotrexate and with balloon, and with Laparotomy.

So our study demonstrates that the use of systemic methotrexate therapy resulted in significant reduction of the BHCG levels in patients diagnosed with cesarean scar ectopic pregnancy within the period from 2014-2018 at Ain Shams maternity hospital ($P< 0.05$).

In **2016, Kanat-Pektas et al.** *(12)* carried out a systematic review that studied electronic databases including 274 articles on CSEP published between January 1978 and April 2014. Found that Systemic methotrexate, uterine artery embolization, dilatation and curettage (D&C), hysterotomy, and hysteroscopy were the most frequently adopted first-line approaches. The success rates of systemic methotrexate, uterine artery embolization, hysteroscopy, D&C, and hysterotomy were 8.7%, 18.3%, 39.1%, 61.6%, and 92.1%, respectively. The hysterectomy rates were 3.6%, 1.1%, 0.0%, 7.3%, and 1.7% in CSEP cases that were treated by systemic methotrexate, uterine artery embolization, hysteroscopy, D&C, and hysterotomy, respectively. The ability to achieve a subsequent term pregnancy is related to successful systemic methotrexate treatment ($p =0.001$) or hysterotomy ($p = 0.009$). Future term pregnancy was significantly more frequent in the hysterotomy group ($p = 0.001$). Hysteroscopy and laparoscopic hysterotomy are safe and efficient surgical procedures that can be adopted as primary treatment modalities for CSEP. Uterine artery embolization should be reserved for cases with significant bleeding and/or a high suspicion index for arteriovenous malformation.

The study disagreed with our study in that systemic methotrexate and suction evacuation are not recommended as first-line approaches for CSEP, as these procedures are associated with high complication and hysterectomy rates *(12)*.

Perhaps, our results differed from other reports, because of differences in the selection criteria used when determining which patients could be treated with suction curettage and Methotreaxate.

They agreed with the results of our study, they recommended MTX therapy as a second choice in comparison to surgical intervention as a curative therapy in both hemodynamically stable and unstable patients. Despite of that, systemic methotrexate therapy was of statistically significant value (p =0.001) in the ability to achieve a subsequent term pregnancy.

In 2018, Wang et al. [(13)] carried out a retrospective study analyzed CSP patients treated at the Tongji Hospital, Wuhan, China, between 2013 and 2015. Data were collected through archived medical records.

The study assessed the efficacy of MTX use before curettage in managing CSP, and concluded that all the CSP patients treated with ultrasound guided suction curettage reported satisfactory results. Besides, the use of MTX before curettage had no significant effects on intraoperative blood loss or retention of pregnancy tissue. Concurrently, the duration of hospital stay of patients treated with MTX was significantly prolonged, which agree with our study.

In 2016, Özdamar et al. [(14)] agreed with our study and demonstrated that in appropriate CSP cases, ultrasound-guided suction curettage appears to be a reliable treatment option [12].

In 2016, Jurkovic et al. [(15)] also considered suction curettage as an effective method for the treatment of CSP which was associated with a lower risk of blood transfusion and hysterectomy.

In 2016, Birch et al. [(16)] with their recent review showed that almost every fourth woman treated with systemic MTX required additional treatment, and severe complications occurred in 13% of them. And this agrees with our study as the 3 patients among the population of our study treated with MXT needed further suction and evacuation as an additional intervention.

Also **in 2016, Yang et al**. **[(17)]** reported that conservative MTX treatment achieved satisfactory therapeutic effects, but the recovery time was significantly longer than that of the curettage group which agrees with our study concerning the hospital stay prolongation with MXT.

From chemoemb

In 2007, 2004 Ash et al. [(18)] and Seow et al. [(19)] disagreed with our study and reported that Uterine suction curettage can remove most of the CSP mass; however, when used alone as a primary therapy to terminate CSP, it carries the risk of serious intraoperative hemorrhage. Uterine suction curettage has been shown to be unsuccessful or cause complications requiring secondary referrals or surgical treatment,

Strength of our study

Being in a tertiary hospital like Ain Shams University Maternity Hospital gave us a good opportunity to have a huge number of admissions for pregnant ladies among which we could find a satisfactory number of CSP patients,

Computed data with special coding system for each diagnosis and final intervention facilitated the search process for the very are cases of CSP.

Threats:

We met some limitations to our study in that data collection was retrospective and that cases were difficult to identify because of lack of specific coding for CSP itself so we had to search in all Ectopic pregnancies which consumed long time.

We recommend the archiving system to specify a special code for CSP as it became an escalating complication in the past couple of years.

Specifics of history or factors influencing management selection were often not documented.

Data were only available on previous caesarean indication only and not all files include specific details needed like uterine closure technique, CSP management complications or subsequent fertility outcomes if the patient had continued and delivered.

Consensus on best management has not been reached in major reviews and future directions could include a registry of cases to collect more comprehensive data on risk factors.

In conclusion, our study shows an overall complication rate of compared to that reported in the literature (44.1%) ***[(11)]*****.**

The complication rate is reduced by an appropriate preoperative diagnostic ultrasound evaluation of the individual case, which points not only to the correct diagnosis of CSP, but also to the identification of cases at higher risk of complications and those eligible for a conservative treatment.

Our data indicate that a treatment combining MTX and D&S appears to be effective and safe in pregnancies with early gestational age. This underlines the importance of a timely diagnosis to minimize side effects and complications.

VI. Conclusion

The present study demonstrated that the correct diagnosis and the personalized evaluation of risk factors could support physicians in making the best choice in terms of safety and efficacy, there's no consensus on the preferred treatment modality for CSP; proper assessment and individualization of treatment is the key for best results with the least risk of complications.

References

[1]. **Köroğlu M, Kayhan A, Soylu FN, Erol B, Schmid-Tannwald C, Gürses C, Karademir I, Ernst R, Yousuf A, Oto A.** MR imaging of ectopic pregnancy with an emphasis on unusual implantation sites. Japanese journal of radiology. 2013; 31(2):75-80.

[2]. **Betran AP, Torloni MR, Zhang J, et al.** What is the optimal rate of caesarean section at population level? A systematic review of ecologic studies. Reprod Health 2015; 12: 57.

[3]. **Betrán AP, Torloni MR, Zhang JJ, Gülmezoglu AM.** WHO statement on caesarean section rates. BJOG 2016; 123: 667–70.

[4]. **Biccard BM, Madiba TE, Kluyts HL, et al.** Perioperative patient outcomes in the African Surgical Outcomes Study: a 7-day prospective observational cohort study. Lancet 2018; 391: 1589–98.

[5]. **Molina G, Weiser TG, Lipsitz SR, et al.** Relationship between cesarean delivery rate and maternal and neonatal mortality. JAMA 2015; 314: 2263–70.

[6]. **Boatin AA, Schlotheuber A, Betran AP, et al.** Within country inequalities in caesarean section rates: observational study of 72 low and middle income countries. BMJ 2018; 360: k55.

[7]. **Robson M, Hartigan L, Murphy M.** Methods of achieving and maintaining an appropriate caesarean section rate. Best Pract Res Clin Obstet Gynaecol 2013; 27: 297–308.

[8]. **Vogel JP, Betrán AP, Vindevoghel N, Souza JP, Torloni MR, Zhang J, Tunçalp Ö, Mori R, Morisaki N, Ortiz-Panozo E, Hernandez B.** Use of the Robson classification to assess caesarean section trends in 21 countries: a secondary analysis of two WHO multicountry surveys. The Lancet Global Health. 2015; 3(5):e260-70.

[9]. **Silver RM, Landon MB, Rouse DJ, et al.** Maternal morbidity associated with multiple repeat cesarean deliveries. Obstet Gynecol. 2006; 107: 1226–1232

[10]. **Thorp JM.** Clinical aspects of normal and abnormal labor. In: Creasy RK, Resnik R, Iams JD, Lockwood CJ, Moore TR, eds. Creasy and Resnik'smaternal-fetal medicine principles and practice, 6th ed. Philadelphia: Elsevier; 2009: 710.

[11]. **Timor-Tritsch IE and Monteagudo A.** Unforeseen consequences of the increasing rate of cesarean deliveries: early placenta accreta and cesarean scar pregnancy. A review. Am J Obstet Gynecol 2012;207:14–29.

[12]. **Kanat-Pektas M, Bodur S, Dundar O, Bakir V.** Systematic review: what is the best first-line approach for cesarean section ectopic pregnancy. Taiwan J Obstet Gynecol. 2016;55:263–269

[13]. **Wang S, Beejadhursing R, Ma X, Li Y.** Management of Caesarean scar pregnancy with or without methotrexate before curettage: human chorionic gonadotropin trends and patient outcomes. BMC pregnancy and childbirth. 2018; 18(1):289.

[14]. **Özdamar Ö, Doğer E, Arlıer S, Çakıroğlu Y, Ergin RN, Köpük ŞY, Çalışkan E.** Exogenous cesarean scar pregnancies managed by suction curettage alone or in combination with other therapeutic procedures: A series of 33 cases and analysis of complication profile. Journal of Obstetrics and Gynaecology Research. 2016; 42(8):927-35.

[15]. **Jurkovic D, Knez J, Appiah A, Farahani L, Mavrelos D, Ross JA.** Surgical treatment of cesarean scar ectopic pregnancy: efficacy and safety of ultrasound-guided suction curettage. Ultrasound Obstet Gynecol. 2016; 47(4):511–517.

[16]. **Birch Petersen K, Hoffman E, Rifbjerg Larsen C, Nielsen HS.** Cesarean scar pregnancy: a systematic review of treatment studies. Fertil Steril. 2016;105:958–967

[17]. **Yang H, Li S, Ma Z, Jia Y.** Therapeutic effects of uterine artery embolisation (UAE) and methotrexate (MTX) conservative therapy used in treatment of cesarean scar pregnancy. Archives of gynecology and obstetrics. 2016; 293(4):819-23.

[18]. **Ash A, Smith A, Maxwell D.** Caesarean scar pregnancy. Br J Obstet Gynaecol 2007;114(3):253–63.

[19]. **Seow KM, Huang LW, Lin YH, Lin MY, Tsai YL, Hwang JL.** Cesarean scar pregnancy: issues in management. Ultrasound Obstet Gynecol 2004;23(3):247–53.

Ekpenyong, Nnette. "B Scan of Orbit with Its Clinico-Surgical Correlation." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 9, 2019, pp 54-60.