

# NICHE (Cesarean Scar Disorder)

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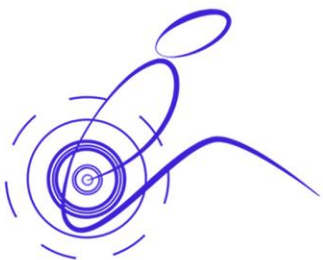
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**Arash Women's Hospital**

**Tehran University of Medical Sciences**

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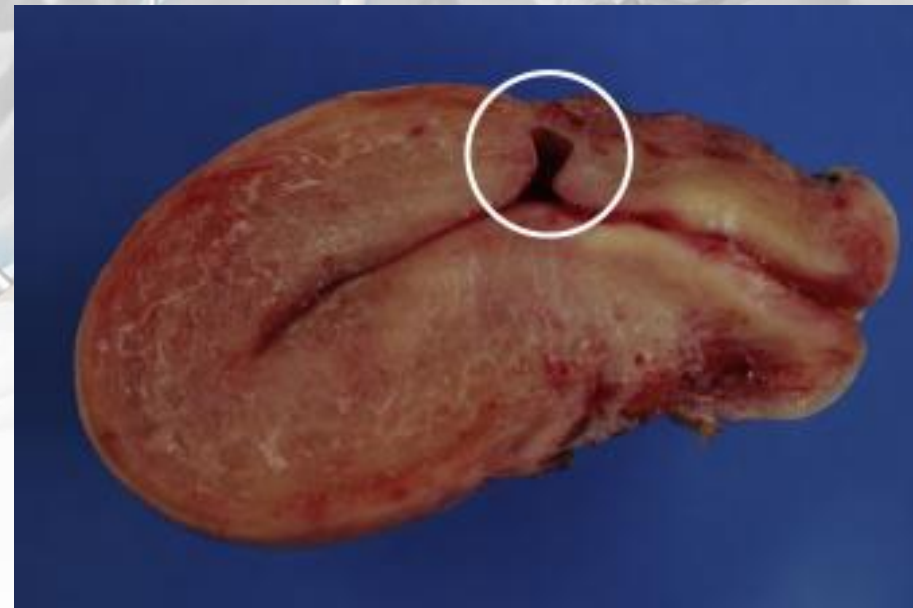


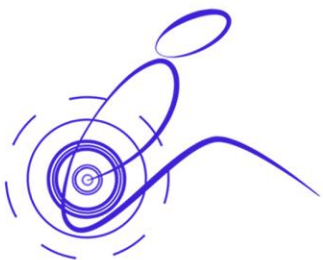
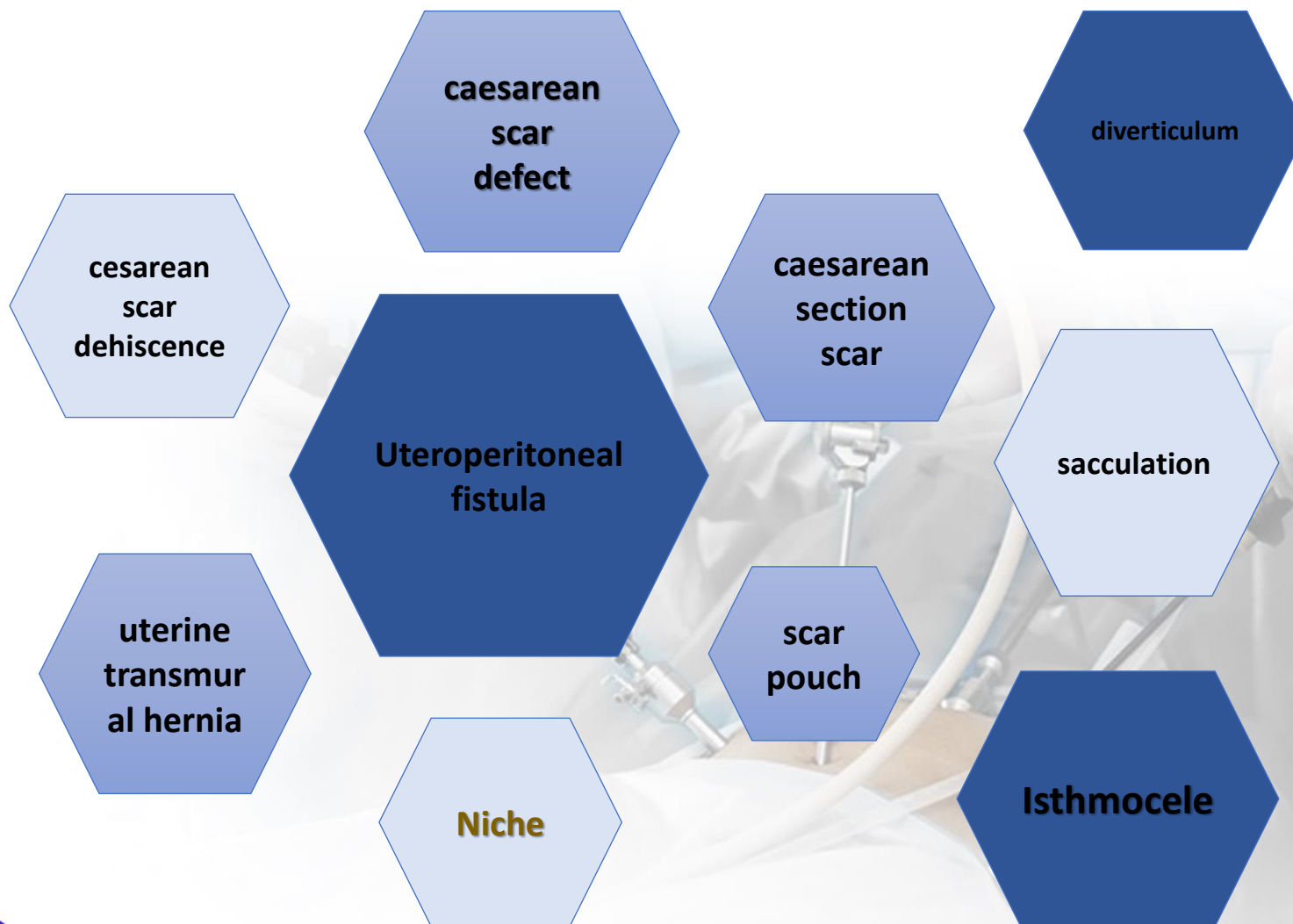
# DEFINITION

A long-term complication of a CD :

- unhealed defect in the uterine myometrium
- often referred to as a uterine niche or cesarean scar defect.

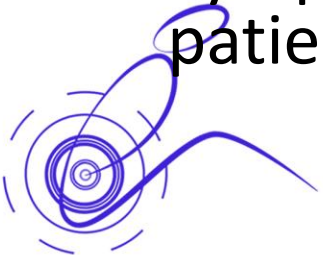
. This entity is formally defined by the European Niche Taskforce as an “indentation in the uterine myometrium of at least 2 mm at the site of the cesarean scar assessed by transvaginal ultrasound.”





# Prevalance

- A niche is observed in 60% of women after a CD
- 25% of all women have a large defect with a residual myometrium of less than 3 mm.
- Approximately *30% to 40%* of women with a CD niche experience symptoms such as
  - postmenstrual spotting,
  - dysmenorrhea,
  - chronic pelvic pain
  - infertility.
- Symptomatic niches can have a profound impact on patients' quality of life



# Asymptomatic

Complications in later pregnancies

postmenstrual  
spotting

Secondary  
infertility/subfertility

dysmenorrhoea

Uterine  
rupture

Abnormally  
adherent  
placenta

Scar rupture

AUB

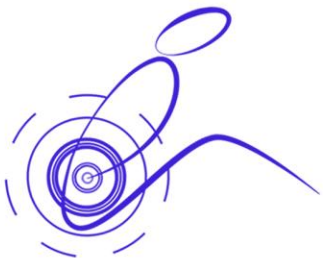
pelvic pain

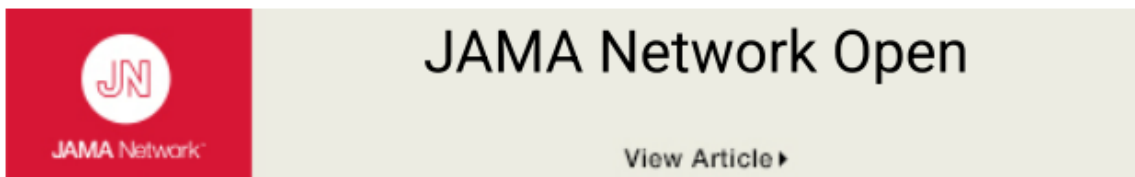
prolonged  
menstrual  
bleeding





- Due to lack of clear guidelines, it is difficult to propose optimal treatments and informed counseling to patients with a niche.
- *it is important to differentiate between a sonographic finding of a niche and a condition caused by a niche-related symptoms and the effect on quality of life*





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## Definition and Criteria for Diagnosing Cesarean Scar Disorder

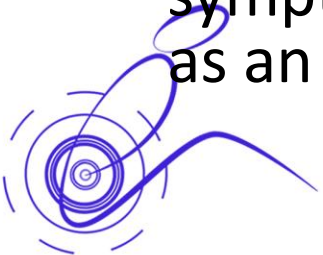
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[Dirk Timmerman](#), MD, PhD, <sup>4, 5</sup> [Judith A. F. Huirne](#), MD, PhD, <sup>1, 2</sup> and [Robert A. de Leeuw](#), MD, PhD <sup>1, 2</sup>, for the CSDi

Study Group



A panel of 31 international experts reached consensus for the constellation of symptoms secondary to a uterine niche and named it CSDi

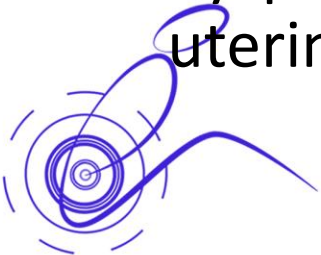
- The constellation of symptoms resulting from a CD niche should be ***Cesarean Scar Disorder (CSDi)***
- Obstetrical issues related to a niche, such as a
  - Cesarean Scar Pregnancy,
  - uterine dehiscence/rupture,
  - placenta accreta spectrumshould be reported as complications of the CSDi not TO be classified as a primary or secondary symptom.
- There was insufficient literature to determine whether a **miscarriage** in patients with a niche should be classified as a symptom related to the CSDi or that it should be considered as an independent problem with a different cause





# Definition

- The agreed definition for CSDi is at least
  - 1 primary or
  - 2 secondary symptomsin the presence of a sonographic finding of a niche (an indentation at the site of the CD scar with a depth of at least 2 mm).
- CSDi is a condition that affects premenopausal women who are symptomatic for at least 3 months following their CD.
- Experts also emphasized that before a diagnosis of CSDi is made, certain conditions must be excluded (eg, cervical dysplasia, infection, uterine cavity pathology, or abnormal uterine bleeding from ovulatory or other iatrogenic causes)



# Diagnostic Criteria

**Table 3. Criteria Required for Diagnosis of Cesarean Scar Disorder and Conditions That Should Be Ruled Out Before Confirming the Diagnosis**

Diagnostic criteria	RoA, %	Conditions to exclude	RoA, %
Minimum of 3 regular menstrual cycles after CD before diagnosis can be made	93.5	Cervical dysplasia	74.2
A patient needs to be premenopausal	100	Vaginal/uterine infections	74.2
The complaints of a symptomatic niche should start after a CD or should worsen significantly after a CD	80.6	Other uterine intracavitary pathology	93.5
A patient can be cured from a symptomatic niche (this does not mean that all symptomatic niche should be treated)	87.1	Other causes of postmenstrual spotting (such as continuous oral contraceptive use or intrauterine device)	80.6
NA	NA	Anovulatory cycles	100

# Conditions to Exclude

**Table 2. Consensus-Based Definition of Primary and Secondary Symptoms of Cesarean Scar Disorder**

Primary symptom/problems	RoA, %	Secondary symptoms	RoA, %
Postmenstrual spotting	80.6	Dyspareunia	72.7
Pain during uterine bleeding	84.2	Abnormal vaginal discharge	87.5
Technical issues with catheter insertion during embryo transfer	73.1	Chronic pelvic pain	87.1
Secondary unexplained infertility combined with intrauterine fluid	70.4	Avoiding sexual intercourse	90.3
NA	NA	Odor associated with abnormal blood loss	83.4
NA	NA	Secondary unexplained infertility	70.0
NA	NA	Secondary infertility despite ART	72.4
NA	NA	Negative self-image	88.0
NA	NA	Discomfort during participation in leisure activities	77.3

# Risk factors for developing CSDi:

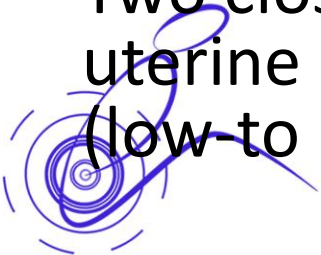
- Number of previous CSs
  - 61% after one CS
  - 81% after two CS
  - even 100% after three CS
- Long active labor duration (after  $\geq 5$  h of labor)
- Peripartal infections
- Elevated body mass index (BMI)
- Diabetes
- Advanced cervical dilatation (cervical dilatation  $\geq 5$  cm)
- The later in labor CS is performed, the greater the risk of developing larger CSDs.
- Retroflected uterus (compared to anteverted uterus)
- The lower the incision, the higher the risk (2 cm below the vesicouterine pouch)





# Technique of suture?

- The benefits of double-layer closure compared to single-layer remain contradictory.
- Single-layer and locked first-layer closure were both associated with ***lower RMT values***
- Double-layer and unlocked first-layer repair were associated with ***higher RMT*** values and ***a greater healing ratio*** than the locked single-layer technique
- ***CSD incidence*** was **similar** when the uterine suture was done via single or double layer
- Two closure techniques showed similar CSD rates as well as uterine dehiscence and rupture in a subsequent pregnancy (low-to moderate-quality evidence).





# Type of suture:

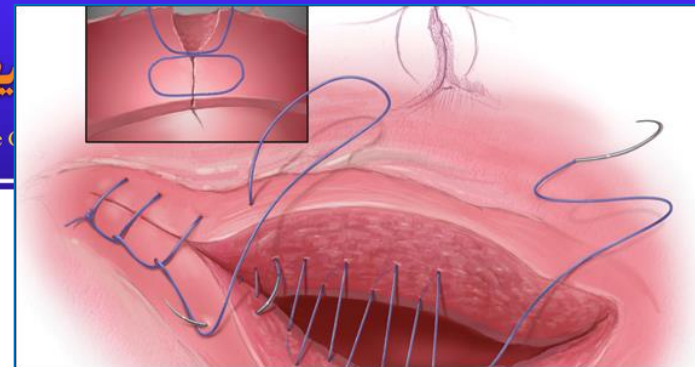
- Synthetic absorbable monofilament sutures ***not*** associated with a reduction in the rate of cesarean scar defect 6 months after delivery compared with the use of synthetic absorbable multifilament sutures
- Hosseini et al. observed that Vicryl sutures were associated with a ***lower risk of CSD formation*** in comparison with catgut sutures



## Conclusion :

- ***There is no difference between single- and double-layer suture regarding the risk of developing CSD.***





## How to prevent?

01

There is **NO** specific type of uterine closure (lack of statistical power)

02

Favour: unlocked with exclusion of decidua to optimize the placement of muscle layers & their regeneration

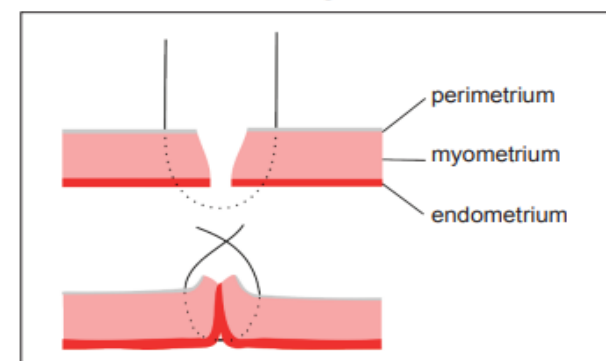
03

inclusion of the decidua leads to the accumulation of endometrial cells in the uterine scar and impairs the appropriate approximation of the myometrium.

04

Exclude decidua from first suture induce better adaptation of myometrium

Uterine closure including decidua



# pathological findings on CSDs

- Distortion and widening of the lower uterine segment,
- Congested endometrium,
- Polyps,
- Lymphocytic infiltration,
- Residual suture material,
- Capillary dilatation,
- Free red blood cells,
- Fragmentation and breakdown of the scar endometrium, and
- Iatrogenic adenomyosis
- Most CSDi harbor endocervical mucosa, often cystically dilated and/or an atrophic or disorganized endometrial mucosa of lower uterine segment origin. The authors observed frequent regenerative epithelial atypia and fibroblastic stromal reaction, but no granulomatous reaction, important inflammation, or hemorrhage was seen. On the contrary, CS scars without CSD formation do not harbor endocervical mucosa, inclusion cysts, fibroblastic stroma, or regenerative atypia, supporting the idea that CSD might be the site of chronic inflammation.





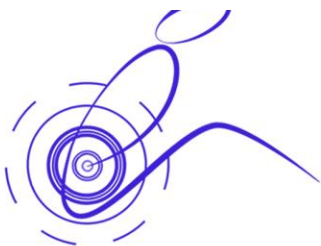
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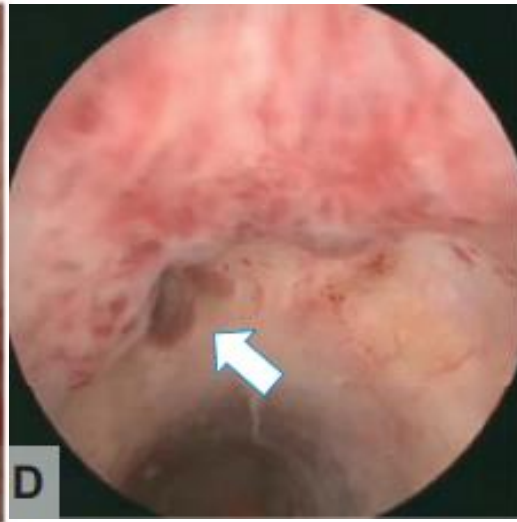






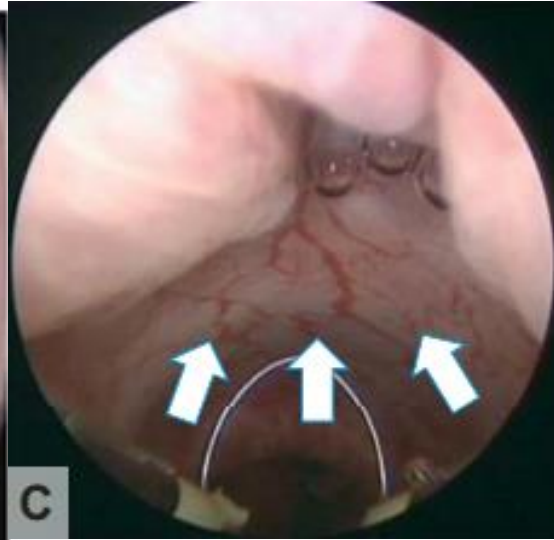
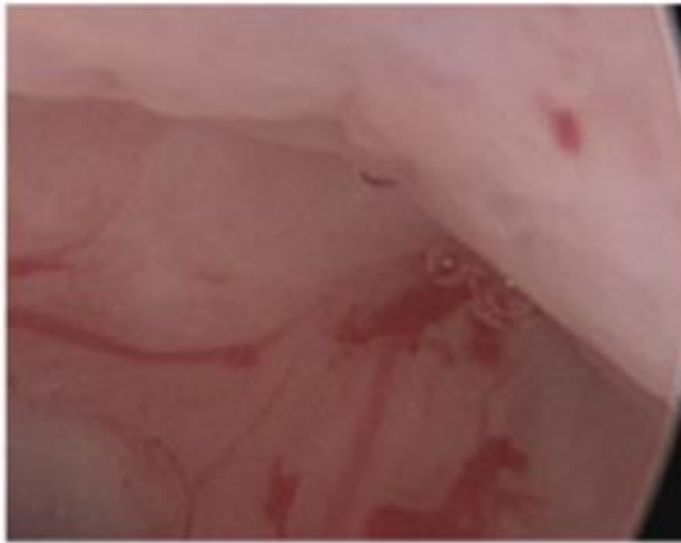
**Concavity in anterior wall**





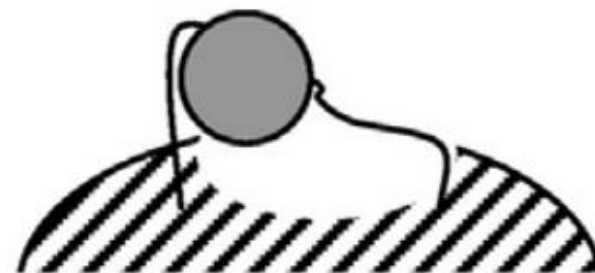
**Mucosa**





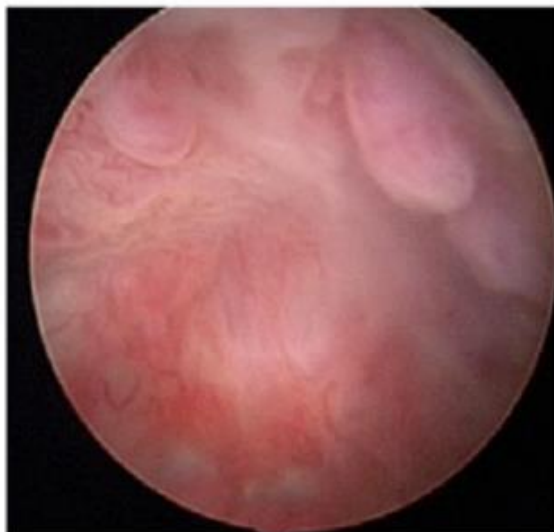
**Dendritic vascular pattern**





**Cystic formation**





**Polyp like structures**



















