Ashermans Syndrome

Introduction

- Definition of what the disease is
- History of the condition
- Pathology formation
- Incidence in population and how it is acquired
- Symptoms
- Patient history and what to ask

History

- Stages of Asherman disease
- Diagnostic imaging in the non-gravid uterus
- Synechiae and the gravid uterus
- Treatment
- Conclusion

Definition

A condition where the uterine walls adhere to one another

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History

- Hald* was the first to describe uterine adhesions as a consequence to curettage in 1949
- Asherman** popularized the subject in 1950 and has since been become known in the literature as the Asherman syndrome.

- Asherman described “amenorrhoea traumatica (atretica)” secondary to stenosis in the region of the internal cervical sinus in 1948
- in 1950 he correlated the presence of intrauterine adhesions with infertility and spontaneous abortion
- Scant or absent menstrual flow is the most common disturbance of this condition

Ashermans.org

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• Representation of normal membrane that lines the endometrial canal
• After surgical trauma fibrous bands grow
  – Part of normal healing process

• Forms adhesions
  – Connects tissue normally separate
• Infertility, amenorrhea, dysmenorrhea

Pathology

• Failure of re-epithelialization with the development of fibromuscular adhesions principal pathologic
• Histologic examination
  – Fibrosis
  – Distorted inactive endometrial glands
  – Fibrous stoma with round cell infiltration
  – Scant or absent vasculature.

Pathology

• Adhesions or synechiae may be delicate
  – Consisting solely of attenuated endometrial stroma
• Most often they consist of hypertrophied fibromuscular tissue stretching between the walls of the uterine cavity.

How is Ashermans Syndrome acquired and what is the incidence in the population?
### Causes

- The primary causes of Ashermans are
  - Interventional procedures
  - Acquired

### Interventional Causes of Ashermans Syndrome

- Surgical scraping.
- Cleaning of the uterine wall
  - likely to happen after a pregnancy-related D&C
- if an infection is present in the uterus during the time of the procedure.
- can also occur after other types of uterine surgery.

- can also result from intrauterine surgery to remove fibroids,
- Uterine structural defects
  - septum, bicornuate uterus, large polyps
- At cesarean section sites

- Incidence of intrauterine adhesions after one D&C was found to be 16%
  - most were mild lesions
- After two and three procedures, the incidences were 14 and 32% respectively
  - more than 50% were severe adhesions

- A D&C is the most common cause of uterine synechiae
  - Ashenman encountered intrauterine adhesions in 44 out of 61 women who had undergone 2 or more curettages
  - May also result from
    - cesarean section, myomectomy, metroplasty and intracavity radium insertion.

- Uterine curettage may be followed by immediate and/or delayed complications.
  - immediate complications
    - perforation of the uterus with hemorrhage and various postabortal infections (endometritis, salpingitis, parametritis, peritonitis)
  - Delayed sequelae of a D&C include the development of uterine adhesions or synechiae.
Acquired Causes of Ashermans Syndrome

- A severe pelvic infection unrelated to surgery (surgical scraping).
- Sporadic inflammation of mucous membrane lining the uterus.
- Endometritis caused by tuberculosis or certain other infectious disease.
- Spontaneous synchiae may develop after healing of an endometritis.
- Infections related to IUD use (or the placement of any foreign object within the uterine cavity).

Related Condition

- Gynatresia
  - Occlusion of some part of the female genital tract, especially of the vagina. (Dorland, 28th ed)

Patient History

- What questions should we ask when obtaining a patient history?
  - Past interventional procedures
  - When was the last surgery
  - Describe their menstrual cycle leading since the surgery
  - History of past miscarriages

Patient Symptoms

- The adhesions vary in extent, causing partial or complete obliteration of the uterine cavity.
- Mild cases
  - No clinical symptoms; normal menstruation is maintained.
- There may be oligomenorrhea, hypomenorrhea, dysmenorrhea, amenorrhea, infertility, and abortion.
- In more severe cases, there may be atresia of the uterine cavity.

Symptoms of Ashermans Syndrome

- Symptoms may be related to several conditions and are more likely to indicate Asherman's syndrome if
  - They occur suddenly after a D&C
  - Or other uterine surgery.

Symptoms of Ashermans Syndrome

- No menstrual flow (amenorrhea) or decreased menstrual flow
- Infertility
- Recurrent miscarriages
- Patients have hypomenorrhea or amenorrhea
  - Some have normal periods
Symptoms of Ashermans Syndrome

- Some patients have feel pain at the time each month that their period would normally arrive.
  - may indicate that menstruation is occurring but the blood cannot exit the uterus because the cervix is blocked by adhesions.

stages of Ashermans Syndrome

- I - Thin or filmy adhesions easily ruptured by hysteroscope sheath alone, cornual areas normal

stages of Ashermans Syndrome

- II - Singular firm adhesions connecting separate parts of the uterine cavity
  - visualization of both tubal ostia possible
  - cannot be ruptured by hysteroscope sheath alone;
- IIa - Occluding adhesions only in the region of the internal cervical OS.
  - Upper uterine cavity normal;

stages of Ashermans Syndrome

- III - Multiple firm adhesions connecting separate parts of the uterine cavity
  - unilateral obliteration of ostial areas of the tubes
- IIIa - Extensive scarring of the uterine cavity wall with amenorrhea or hypomenorrhea
- IIIb - Combination of III and IIIa;

stages of Ashermans Syndrome

- IV - Extensive firm adhesions with agglutination of the uterine walls. Both tubal ostial areas occluded
Stages of Asherman's Syndrome according an online community for patient information

Stage 1 - Diagnosis
• Normally done by the OBGYN when problems have occurred such as
  – absence of menstruation
  – abdominal pain.
  – very light period however
  – no success in conception.

Stage 1 - Diagnosis
• Diagnosis is usually made by
  – HSG
  – SHG
  – Diagnostic hysteroscopy.

Stage 2 – treatment
• Hysteroscopic to remove adhesions.

Stage 2 – treatment
• After surgery a balloon catheter may be inserted into uterus
• Used to keep uterine walls from adhering together during the healing process. (5-14 days)

Stage 2 - treatment
• Antibiotics given
  – prevent infection.
• When balloon is removed a regimen of estrogen and progesterone may be prescribed
Stage 2 - treatment

- 2-3 months after post-op
  - HSG, SIS, hysteroscopy
  - Evaluate uterus fallopian tubes for remaining scar tissue.
- Subsequent surgery may be necessary.

Stage 3 – living with it

- Once healed from your surgery free of scar tissue patients may try to conceive.
- It is very important that the uterus is at least 90% free of scar tissue before getting pregnant.

risks patients face with carrying a child are

- Placenta Previa
- Placenta Accreta
- Premature rupture of membranes
- possibly incompetent cervix.

Diagnostic imaging in the non-gravid uterus

- Diagnostic procedures performed to confirm the condition
  - sonography
  - Hysterosalpingogram
  - Hysterosonogram
  - Hysterooscopy

- Uterine synechiae can be mimicked by subseptate uterus,
  - membrane originates from the uterine fundus and aligns itself in the sagittal plane.
Sonography

- In the diagnosis of endometrial abnormalities Ghare et al. found that SIS has a higher sensitivity (83-88%) than transvaginal sonography (60-69%)
- They also reported that 3D imaging was an adjunct to diagnosis

Case 1

Pelvis Ashermans syndrome
my seminal case

6-05-02 2 mo post mechanical Abortion no period

Preop diagnosis Hematometra
Postop diagnosis hematometra

Pathology: Portions of hyalinized and partially necrotic appearing endometrial tissue

Note shape of EC during contractions
Area of occlusion in LUS

Note shape of EC during contractions

Ultrasound images
Case 2
3 months post abortion and no period
Ultrasound images Case 3

- Elevated WBC
- No period
- No pelvic discharge

Ultrasound images Case 4

- D & C two months prior
- No period
Ultrasound images Case 5

- Patient had a conization 3 months ago
- G3 P2 AB1

Transabdominal imaging

EV imaging

EV with focus on Cervix

Showing vagina

Hysterosonogram
Without SIS

Catheter is in place

Infusion of saline

- Endometrial cavity obliterated by adhesions
- After a saline infused sonogram

- Sonohysterogram of a patient with a Hx of multiple miscarriages
- Note an irregular thick echogenic band traversing the poorly distended cavity
• Sonohysterogram of a 46 year old who presented with excessive vaginal bleeding
• Note the echogenic strands traversing the canal
The use of 3D

• 2D Ultrasound may not the best methodology
• 3D Ultrasound alone or
• 3D with Hysterosonogram may be the better methodologies

• Mendelson described the EC appearance on ultrasound as
  – Serpiginous echogenic endometrial irregularities
• He found that the HSG correlated with the sonographic appearance in one of two patient
• In both cases, the images obtained transvaginally were of better quality information.
Hysterosalpingogram

Hysteroscopy solved the diagnostic dilemma in the diagnosis of Asherman’s syndrome.

- Adhesions can result in:
  - Menstrual disturbances
  - Infertility
  - Recurrent abortions
- During pregnancy adhesions can result in
  - Premature labor
  - Placenta previa
  - Placenta accreta

In a study by Iris et al. reevaluated 50 women who had:
- a D&C, digital evacuation post delivery or a missed or medical abortion
- 3 months after the procedure. Adhesions were encountered in 20/50 (40%)
  - 5 had grade I
  - six had grade II
  - six had grade III
  - three had grade IV

HSG showing contrast filling defects caused by intrauterine adhesions.
- arrows show the areas of front to back adhesion partially occluding the cavity and disrupting the normal endometrium

BMJ 2003;327:610-613 (13 September), doi:10.1136/bmj.327.7415.610

25 year old with intrauterine synechiae
- HSG shows sharp demarcated adhesions
- Areas lacking contrast

American Journal of Roentgenology

HSG shows irregular filling defects representing adhesions

RadioGraphics
**Hysteroscopy image**

Normal cervix  
Normal endometrial canal

**Hysteroscopy**

[Image of Hysteroscopy]

http://www.gynaecology.spotmysite.com/page/295/miscarriage.htm

**Hysteroscopy**

Tubal subfertility  
Khalaf BMJ 2003; 327: 610-613

**Hysteroscopy**

- 2 bands of scar tissue going from the floor of the uterine cavity

* Advanced Fertility Center of Chicago

**Hysteroscopy Fibroids**

- Asherman’s syndrome has been reported to be present in almost 20% of the patients with previous D&C or intrauterine infection*
- The majority of cases were type I

**Synechiae and the gravid uterus**

**Uterine synechiae in pregnancy**

- Complications of trauma to the basal layer of the endometrium Asherman
- During pregnancy, intrauterine adhesions may appear as an intraamniotic membrane*
- Must be distinguished from the more ominous amniotic band syndrome.

* RD Harris and RA Barth
Sonography of the gravid uterus and placenta: current concepts

**Pregnancy synechiae**

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* RD Harris and RA Barth
Sonography of the gravid uterus and placenta: current concepts
What happened:
the synechiae seemed to disappear

- Ball et al. Speculated that as the intrauterine cavity dimensions increase, the fixed adhesions snap and the membranes reapproximate to the uterine wall.

Obstetric complications in pregnancies

- Fineberg and Lazebnik et al. suggested an increase risk for:
  - malpresentation and related need for cesarean delivery in patients with uterine synechiae... particularly when the orientation was perpendicular to the placenta.

Severe obstetric complications in subsequent pregnancies

- Deaton et al. reported a spontaneous uterine rupture during pregnancy—after Hysteroscopic treatment of Asherman’s syndrome and complicated by a fundal perforation.
- Friedman et al. described three severe complications:
  - uterine sacculation, a uterine dehiscence, and a placenta accreta.

Endovaginal image of C-section scar

Severe obstetric complications in subsequent pregnancies

- Jewelewicz et al. found a rate of placenta accreta of 9% in a series of 137 term pregnancies.
- In a study by Sylvie et al. two out of nine pregnancies with live births (22.2%) were complicated with placenta accreta— one had a past history of abnormal placentation.

Treatment of Ashermans Syndrome

- Asherman’s syndrome should be treated if it is causing infertility or amenorrhea.
- Surgical treatment includes cutting and removing adhesions or scar tissue within the uterine cavity.
**Treatment of Ashermans Syndrome**

- After surgery may place a small balloon inside the uterus for several days
  - To prevent the walls from reattaching
  - Estrogen replacement therapy may be prescribed while the uterine lining heals.
- Antibiotic treatment may be necessary if infection is identified.

**Keys to treatment include**

- Early recognition
- Early treatment
  - by a Physician experienced with the condition.

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**Conclusion**

- Women with menstrual disorders after an intervention had a strong increased risk in developing intrauterine adhesions
- These adhesions can result in
  - Menstrual disturbances
  - Infertility
  - Recurrent abortions
- Knowing the right question to ask your patients can help steer the clinician in making the right diagnosis

- Watch for complications in all patients with a history of intrauterine adhesion removal