Amenorrhea
AMENORRHEA

Is the absence or abnormal cessation of the menses

PHYSIOLOGICAL AMENORRHEA

PATHOLOGICAL AMENORRHEA
CONTROL OF MENSTRUAL CYCLE

HYPOTHALAMUS

PITUITARY

ENDOCRINE

OVARIAN

OUTFLOW TRACT AXIS
CLASSIFICATION OF AMENORRHEA

AMENORRHEA

PHYSIOLOGICAL
- Pre-puberty
- Pregnancy related
- Menopause

PATHOLOGICAL
- Primary
- Secondary
AMENORRHEA

PATHOLOGICAL AMENORRHEA

- A patient is diagnosed with **primary amenorrhea** if she has not reached menarche by age 16 with normal secondary sexual characteristics.

- **Secondary amenorrhea** if established menses have ceased for longer than 6 months without any physiological reasons.
ETIOLOGY OF AMENORRHEA

Hypothalamic-hypogonadism

Weight related amenorrhea (anorexia nervosa)

Hypothalamus

Pituitary adenoma
Sheehan’s syndrome

Endocrine

Hypothyroidism

Ovarian

Gonadal dysgenesis
Gonadal failure
PCOS

Congenital absent of uterus and vagina
Vaginal atresia
Imperforate hymen
Asherman’s syndrome

Outflow tract axis
Etiology of Amenorrhea

Primary
- Gonadal failure (43%)
- Congenital absence of uterus and vagina (15%)
- Constitutional delay (14%)

Secondary
- Chronic anovulation (39%)
- Hypothyroidism / hyperprolactinemia (20%)
- Weight loss/anorexia (16%)
Primary amenorrhea is the failure to start menstruation by age of 16 in a girl with normal secondary sexual characteristics OR by the age of 14 where there is a failure to develop secondary sexual characteristics.
Primary Amenorrhea - Etiology

- Chromosome mutation
  - Androgen insensitivity (testicular feminization)
  - Turner's syndrome
  - Gonadal dysgenesis

- Hypothalamic-pituitary dysfunction
  - Hypothalamic failure (Kallmann's syndrome)
  - Absent of uterus
  - Absent of vagina
  - Imperforate hymen
Primary Amenorrhea
- ETIOLOGY -

OUT FLOW TRACT DISORDERS (Imperforate hymen)

Imperforate hymen represents one form of failure of complete canalization of the vagina.

Most frequent obstructive anomaly of the female genital tract.

Presentation: primary amenorrhea associated with cyclical abdomen pain – abdominal swelling and urinary retention.

Signs: Bluish bulging membrane at the introitus
GONADAL DYSGENESIS (Turner’s syndrome)

Chromosomal abnormalities (45XO female)
Associated with streak ovarian tissue and primary amenorrhea.

Presentation: primary amenorrhea associated with features of Turner’s syndrome – short stature, webbed neck, increased carrying angle at the elbow and sexual infantilism.
Primary Amenorrhea
- ETIOLOGY -

ANDROGEN INSENSITIVITY (Testicular feminization)

A syndrome found in patients with X, Y chromosome but resistant to androgens (androgen insensitivity).

Has male karyotype (45XY) with female appearance.

Presentation:
Female appearance with normal breast development and external genitalia.
Primary amenorrhea, absent uterus
Gonad - testes
Primary Amenorrhea

ETIOLOGY

HYPOTHALAMIC FAILURE (Kallmann’s syndrome)

Congenital disorder characterized by:

1) Hypogonadotropic hypogonadism
2) Eunuchoidal features
3) Anosmia or hyposmia
4) Primary amenorrhea

Caused by defect in synthesis and/or release of gonadorelin (LH releasing hormone)
Secondary amenorrhea is the absence of menstrual periods for 6 months in a woman who had previously been regular, or for 12 months in a woman who had irregular periods without any physiological reasons.
Secondary Amenorrhea - Physiological -

The most common cause of secondary amenorrhea in reproductive age women is pregnancy and this should always be excluded by physical exam and laboratory testing for the pregnancy hormone - HCG.
Secondary Amenorrhea

- ETIOLOGY -

ENDOCRINE

Hypothyroidism
Cushing’s
Adrenal tumour
Ovarian tumour
(androgen)

Premature ovarian failure
PCOS
Surgical removal

Pituitary tumour
Sheehan’s syndrome
Hypothalamic dysfunction

Asherman’s syndrome
Hysterectomy

OVARIAN

HYPOTHALAMUS-PITUITARY

OUTFLOW TRACT

Progesterone
Estrogen

FSH
LH

Pelvis
Fallopian tube
Uterus

Brain

Body
Secondary Amenorrhea
- ETIOLOGY -

POLYCYSTIC OVARIAN SYNDROME (PCOS)

PCOS accounts for 90% of cases of oligoamenorrhea

Also known as Stein-Leventhal syndrome

The etiology is probably related to insulin resistance, with a failure of normal follicular development and ovulation

The classical picture – AMENORRHEA, OBESE, SUBINFERTILITY and HIRSUITISM
Secondary Amenorrhea

- ETIOLOGY -

HYPOTHALAMIC CAUSES

Hypothalamic dysfunction is a common cause (30%).

It is more often seen as a result of stress, weight loss and eating disorders.

It may be due to tumour, infarction, thrombosis or inflammation.
Secondary Amenorrhea
- ETIOLOGY -

PITUITARY CAUSES

Pituitary failure - It is usually the acquired type as the result of trauma, treatment of pituitary tumour or infarction after massive blood loss (Sheehan’s syndrome)

Pituitary tumour → hyperprolactinaemia which cause secondary amenorrhea.
Secondary Amenorrhea
- ETIOLOGY -

ENDOCRINE CAUSES

Thyroid disorder and Cushing’s disease interfere with the normal functioning of the hypothalamic-pituitary-ovarian axis → present with amenorrhea.

High level of thyroxine inhibit FSH release.

Androgen – secreting tumours of the ovaries → cause secondary amenorrhea.
Secondary Amenorrhea
- ETIOLOGY -

ANATOMICAL CAUSES

Usually due to previous surgery.

Commonest example:
1). Hysterectomy
2). Endometrial ablation
3). Asherman’s syndrome (damage to the endometrium with adhesion formation)
4). Stenosis of the cervix following cone biopsy
Premature ovarian failure occurs in about 1% before the age of 40.

Premature ovarian failure may be due to:

1). Chemotherapy and radiotherapy.
2). Autoimmune disease following viral infection
3). Following surgery for conditions such as endometriosis
Secondary Amenorrhea - ETIOLOGY -

DRUGS CAUSING HYPERPROLACTINAEMIA

Hyperprolactinaemia accounts for 20% of cases of amenorrhea.

Prolactin inhibits GnRH release from the hypothalamus.

Drugs that may cause hyperprolactinaemia:

1). Phenothiazines
2). Methyldopa
3). Cimetidine
4). Butyrophenones
5). Antihistamines
THANK YOU
Clinical Approach to Management Of Amenorrhea
THE ASSESSMENT

HISTORY

EXAMINATION

INVESTIGATIONS
The most common cause of secondary amenorrhea in reproductive age women is pregnancy and this should always be excluded by physical exam and laboratory testing for the pregnancy hormone - HCG.
ASSESSMENT

History

A good history can reveal the etiologic diagnosis in up to 85% of cases of amenorrhea.
CLINICAL ASSESSMENT
- HISTORY -

ASK ABOUT

- Menstrual cycle → age of menarche and previous menstrual history
- Previous pregnancies - severe PPH (Sheehan’s syndrome)
- Weight change → A large amount of weight loss (anorexia nervosa)
- Hot flashes, decreased libido → premature menopause
- Certain medications
- Contraception
- Associate symptoms - Cushing's disease, hypothyroidism
- Previous gynaecological surgery
- Chronic illness
CLINICAL ASSESSMENT
EXAMINATION

CHECK FOR

- BODY MASS INDEX (BMI) → weight loss-related amenorrhea
- BLOOD PRESSURE → elevated in Cushing and PCOS
- ANDROGEN EXCESS → hirsuitism (PCOS) – virilization (tumour)

Secondary sexual characteristic
Features of Turner’s syndrome
Breast examination → may revealed galactorrhea,
Abdominal (haemato mera) and pelvic masses (ovarian tumour)
Inspection of genitalia → imperforate hymen, cervical stenosis
Vaginal examination → blind vagina, vaginal atresia, absent of
If the history and physical exam are suggestive of a certain etiology

The workup can sometimes be more directed
Some patients will not demonstrate any obvious etiology for their amenorrhea on history and physical examination.

These patients can be worked up in a logical manner using a stepwise approach.
INVESTIGATING PRIMARY AMENORRHEA

- BLOOD TESTS
- ULTRASOUND
- CT scan of pituitary
- KAROTYPING
- LAPAROSCOPY
Ovarian failure (premature menopause)

- Chromosomal anomalies
  - If the woman is under 30, a karyotype should be performed to rule out any mosaicism involving a Y chromosome.
  - If a Y chromosome is found the gonads should be surgically excised.

- Autoimmune disease
  - It is prudent to screen for thyroid, parathyroid, and adrenal dysfunction.

Laboratory evidence of autoimmune phenomenon is much more prevalent than clinically significant disease.
Hypothalamic-pituitary failure

- Patients who do not bleed after the progestin challenge
- But do bleed after estrogen/progestin and
- Have normal or low FSH and LH levels
## Investigating Secondary Amenorrhea

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TREATMENT OF AMENORRHEA

The need for treatment depends on

- Underlying causes
- Need for regular periods
- Trying to conceive (fertility)
- Need for contraception
TREATMENT OF AMENORRHEA

Underlying causes

- PITUITARY TUMOUR → Bromocryptine / Surgery
- ANDROGEN producing tumour of ovary → Surgery
- TESTICULAR FEMINIZATION → removed gonad + HRT
- TURNER’S syndrome → HRT
- IMPERFORATE HYMEN → surgical incision
- THYROID disease – appropriate medical treatment
- EATING DISORDERS → referred to psychiatrist
- PCOS → appropriate treatment
- ASHERMAN’s syndrome → breaking down adhesion + insert IUCD
TREATMENT OF AMENORRHEA

TRYING TO CONCEIVE

The prognosis for women with confirmed ovarian failure is poor.

ANOVAUTION → response well with ovulation induction treatment

PCOS → ovulation may resume with weight reduction – fertility drugs - use of gonadotrophins or ovarian drilling.

HYPERPROLACTINAEMIA → respond to treatment with dopamine agonist.

HYPOTHALAMIC DYSFUNCTION → maintenance of normal weight and change of lifestyle

ASHERMAN’S syndrome → breaking down adhesion + insert IUCD
TREATMENT OF AMENORRHEA

WANT REGULAR PERIOD

The use of

1): COMBINED ORAL CONTRACEPTIVE
2): HRT

NEED CONTRACEPTION

Confirmed ovarian failure will not require contraception

Women requiring contraception → oral contraceptives are the method of choice
THANK YOU