ABORTIONS: CAUSES AND MANAGEMENT

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PLANNING

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INTRODUCTION

• Abortion is the expulsion of the conceptus before 28 completed weeks of gestation, or a fetus weighing less than 500g.
• WHO and FIGO state less than 20-22 weeks.
• It could be induced or spontaneous.
• Three consecutive abortions would be termed; habitual abortion.
INTRODUCTION 2

• The frequency of spontaneous abortions is 12 to 15%.
• In our milieu, Nasah et al estimated at 10 to 20%.
• The frequency of habitual abortion is about 0.4 to 0.8%.
• Habitual abortion affects 2 to 5% of childless couples.
INTRODUCTION 3

• 75% of spontaneous abortions occur before the 16\textsuperscript{th} week of gestation and 62% before 12 weeks.

• The incidence of subclinical abortions is estimated at 8%.
A few risk factors have been elucidated:

- The risk increases with age (OR=2.3 after the age of 30).
- Past history: risk after one abortion is 8%, 40% after 3 abortions and 60% after 4 abortions.
- Ethnic origin and psychological factors.
Parity, history of voluntary induced abortion, medically assisted conception, contraceptive method, tobacco consumption do not seem to play any significant role in spontaneous abortions (J Lansac).
CAUSES

• **Chromosomal causes** (genetic) are most frequent, about 70% within the first 6 weeks, 50% before 10 weeks, 5% after 12 weeks.

• Could be: -errors during gametogenesis, non disjunction in paternal or maternal meiosis, resulting in monosomy (15%), trisomy (54%) or a double trisomy (3%).
CAUSES 2

• Errors during fertilization by digyny (fusion of male pronucleus with two female pronuclei) or by diandry (fusion of female pronucleus with two male pronuclei) resulting into triploidy (19% of cases),
• Error of segmentation during 1st zygotic cell division, resulting in tetraploidy (4% of cases) or in mosaicism (1% of cases).
CAUSES 3

• These quantitative (number) abnormalities of chromosome represent 96% of the genetic causes.

• Maternal age and the aging of the gametes favor these abnormalities.

• Errors could be due to radiation, or due to translocation in the parents (4%) leading to habitual abortions.
Each type of genetic abnormality would cause abortion at a given age of pregnancy: 1 week for trisomy 17 and autosomic monosomy, 3 weeks for trisomy 16 and tetraploidy, 6 weeks for trisomy 22, 5 weeks for triploidy, 6 weeks for X monosomy.

Studies on placenta and caryotyping will often show such findings.
CAUSES 5

- Other ovum abnormalities can be responsible for abortions such as: multiple pregnancies, abnormal placental insertion, hydramnios, single umbilical artery etc.

- **Infections** are the second cause of abortions, representing about 15% of the cases.
CAUSES 6

• Several germs infect the egg and the endometrium, causing single or repeated spontaneous abortions.
• Some of these germs are: listeria, toxoplasma, rickettsia, mycoplasma, viral infections (rubella, herpes, CMV, HbAv), nonspecific infections (colibacilli), local infections (cervicitis, endometritis) and malaria especially in our milieu.
CAUSES 7

- Infections should be investigated if abortion occurs in a febrile context. Leke et al found that 35% of abortion cases were not protected against toxo (negative serology).

- Common viruses like the mumps virus, *influenzae*, varicella and herpes zoster have no proven risk.
CAUSES 8

• **Mechanical causes:**
  – Related to the ovum: multiple pregnancies, hydramnios, leading to uterine overdistension, contractions, cervical dilatation and membrane rupture.
  – Uterus (12 % of cases): hypoplasia and hypotrophy, leiomyomas, synechiae or congenital malformations.
CAUSES 9

- Up to 60% of uterine septae will cause spontaneous abortions (Singha 2003 EJ OG).
- Cervical incompetence, acquired (D/C, deliveries, conization, synechiae operations etc.) or congenital, causes 30% of 2nd trimester abortions.
CAUSES 10

• **Metabolic and vascular causes**
  • Diabetes: risk doubles if poorly controlled.
  • HTN increases the risk.
  • Tobacco consumption.
  • Chronic renal diseases.
  • Disseminated lupus erythematosis.
CAUSES 11

• Immunologic causes: HLA system with rejection of paternal antigens
• Autoimmune abnormalities (circulating lupic anticoagulants).
• Endocrine causes: luteal insufficiency associated with abnormal ovulation with polycystic ovaries, hyperprolactinemia, hyperthyroidism, poorly controlled diabetes.
UNKNOWN CAUSES

• In **15-20 %** of cases of spontaneous abortions, the cause is not known.
• The incidence is **0.5 to 2 %** of all pregnancies (Fomulu et al. 1990).
• Nasah et al. (1982) found an incidence of **33.8 %** in the high risk clinic.
TREATABLE CASES

• The most frequent indication of cerclage is prophylaxis, around the 15th week of gestation; Mac Donald (1963) and Shirodkar (1955).

• Proven success rates and evident based.

• Drakeley AJ 2003, Cochrane review (6 trials, 2175 women): less delivery at <33 weeks, but more tocolytics, mild pyrexia and hospital admission.
PREVENTION

• *Progesterone*: R M Oates Cochrane, 14 trials, 1988 women; progestogens and placebo with similar outcome.

• *Bedrest*: A Aleman (2005) 2 studies of 84 women, placebo and bedrest similar, hospital and home bedrest similar, HCG reduced miscarriage more than bedrest.
PREVENTION 2

- Vitamin supplementation: Rumbold A, 17 trials of 35812 women and 37353 pregnancies, 2 cluster randomized trials of 20758 women and 22299 pregnancies;
  - less preeclampsia,
  - more multiple pregnancies but
  - no difference in rate of miscarriage.
PREVENTION 3

• *APL Ab or lupus anticoagulant*: M Empson 13 studies, 849 participants, compared placebo, prednisone Ig, LMWH, aspirin alone and *aspirin + unfractionated heparin*; latter reduced pregnancy loss by 54%.

• *Immunotherapy*: TF Porter, paternal leukocyte immunization, 3rd party, trophoblast mb, IV Ig in recurrent unexplained miscarriages. *No benefits.*
TREATMENT OPTIONS

- *Incomplete abortions*: F Forna (2001) Cochrane review showed vacuum aspiration to be safer and more effective than sharp curettage.

CONCLUSION

• First trimester abortions mostly due to genetic causes, are very difficult and even impossible to treat.

• In the second trimester, cervical incompetence being the main cause, prophylactic cerclage has been proven to be effective.

• Post abortum care needed.
THANK YOU

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