Bovine Infertility

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Fertility relates to
• Follicle development and maturation
• Estrus onset
• Successful coitus/ AI
• Ovulation
• Fertilization
• Implantation
• Development and delivery of the fetus and its membranes

World standard for fertility is the conception rate
Fertility is affected by various factors

- **Age**: Fertility declines with increasing parities
- **Production**: Increased milk production decreased fertility
- **Disease**: Mastitis, retained placenta
- **Artificial control of estrus**
- **Nutrition**
- **Management**
Infertility : Temporary Loss of fertility (Sub-fertility)

- Cattle and buffaloes are considered infertile when they are neither normally fertile nor sterile.
- Interest in bovine infertility increased with introduction of AI in 1950s.
- Decreasing fertility is a worldwide problem. It has been recently reported that fertility in cows has been declining in USA, U.K, Netherland, Ireland, France, Spain, Quebec etc. Over the last many years.
Infertility

- Congenital Morphological causes
- Functional Causes
- Infectious Causes
Congenital morphological causes
(Developmental abnormalities of genital organs)

- Ovarian hypoplasia
- Freemartinism
- Hermaphrodites
- White heifer disease
- Double cervix
- Uterus unicornis
- Hymen defects
- Others

Acquired Causes

- Ovarobursal adhesions
- Uterine adhesions
- Cervical cirrhosis
- Genital tumors
- Parturient lacerations
Ovarian hypoplasia (Germ cell weakness)

- Swedish Highland cattle
- Swedish white and Red cattle
- Low number of primordial follicles
- Hypoplasia is left sided or bilateral
- Ovaries small less than 1 g Partially hypoplastic ovaries 4-8 g ovaries have furrows
- No estrus or pregnancy
- No CL no follicle
Freemartin (Intersex)

- Genetically female fetus masculinised in the presence of a male co-twin, giving rise to a sterile heifer.
- Genital tract defects with varying severity can be observed in freemartin animals
- Uterine horns hypoplastic or cord like
- Anatomic continuity between the uterus and the vagina is frequently absent
• Placental anastomoses between the heterozygotic twins results in blood chimaerism occurs (60, XX/XY) and passage of male gonad determinants or hormones to female fetus.
• External genitals female like
• Fish-hook shaped vulva,
• Cervix is underdeveloped or absent
• Enlarged clitoris, small vulva, tuft of hair
• Urine emission in upward spurts
• Small sized vulva and rudimentary uterus
• Small sized vagina with a blind end
• The presence of vesicular glands was a constant feature seminal vesicles in a phenotypic female
Aquired morphologic causes of infertility

• Ovarobursal adhesions
  Incidence 1-17% in different studies
  Common in adult pluriparous cows
  Infections of bursa may occur following metritis, pyometra or macerated fetus or ovulation and rough ovarian palpations
  Infusion of large volumes of intra-uterine drugs
Tuberculous peritonitis
• Fine web-like strands to complete fibrosis of the bursa
• Often attached to a scar or regressing CL
• May be unilateral or bilateral
• Oviducts may become ocluded resulting in hydro-salpinx and later pyo-salpinx
• Diagnosis Transrectal palpation and PSP dye test
• Therapy not possible in bilateral cases.
Cervical cirrhosis

- Results from cervicitis
- Considered by some when second cervical fold prolapses with redening
- Poor manipulative procedures
- Does not affect fertility when uterus is not involved
- Cervical tears can result in fibrotic changes when unattended
Genital tumors

• Common Tumors on vulva and vagina include squamous cell carcinoma, fibroma and fibro-pappiloma

• Adeno-carcinoma, leio-myomas and fibroma are common in the uterus.
• The above lectures are also explained in video lectures at my YouTube Channel Govind Narayan Purohit

• Kindly share the videos and subscribe to my channel if you like them

• Thanks