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A Conceptual Review Study of Nadivrana

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Abstract:

A sinus is a blind-ending tract, usually lined with granulation tissue, that leads from an epithelial surface into the surrounding tissue, often into an abscess cavity. Sinuses may be congenital or acquired. Congenitalsinuses arise from the remnants of embryonic ducts that persist insteadof being obliterated and disappearing completely during embryonic development. Acquired sinuses are usually secondary to the presence of foreign or necrotic material (with or without associated sepsis) within the affected tissue or from certain types of microbial infection. It is important to distinguish these from fistulas, which are abnormal communications between two epithelium-lined surfaces[2].

Keywords : NADIVRANA, SINUS

Introduction:

Nadivrana is a common disorder in tropics due to unhygienic conditions. Clinically Nadivrana forms if abscess is avoided or treated improperly and ineffectively with post- operative

complications and complaints of recurrences in most of the cases by the line of treatment adopted by modern surgeons. Insipte of tremendous progress in the field of modern surgery, still there or greatly analyzed chances of recurrence are noticed and reduced success rate[1].

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Accurate detection of any associated deep abscess cavity complex deep extensions of the sinus tract is paramount successful treatment. Failure to do this will result in recurrence the sinus either at the same siteor an adjacent location.

Nadivrana is an ulcer having a tract extending into the deeper tissues. Nadivrana is associated with the presence of a large number of recesses or cavities in an ulcer. When excessive infiltration of pus burrows deeply then it can be called as nadivrana.

MODERN REVIEW

Prologue: A clear understanding of sinus, its classification, anatomical specificity, aetiopathogenesis, and management styles according to current understanding of the subject is inevitable for the successful management of Nadivrana.

Historical aspects: Much data is not available in the management of sinuses ingeneral, because of versatility of anatomical locations, specific infections etc. However, the nature of the disease (e.g. congenital nature in bronchial sinuses and fistulae) infectious pathology (e.g. Tuberculoses sinuses following tuberculosis, lymphadenitis), affinity of certain areas of the body (e.g. pre- auricular sinus at the root of helix in pinna), obstructive pathology (e.g. pilonidal sinus) etc, reveals that majority of the sinuses occurs in anorectal region possible

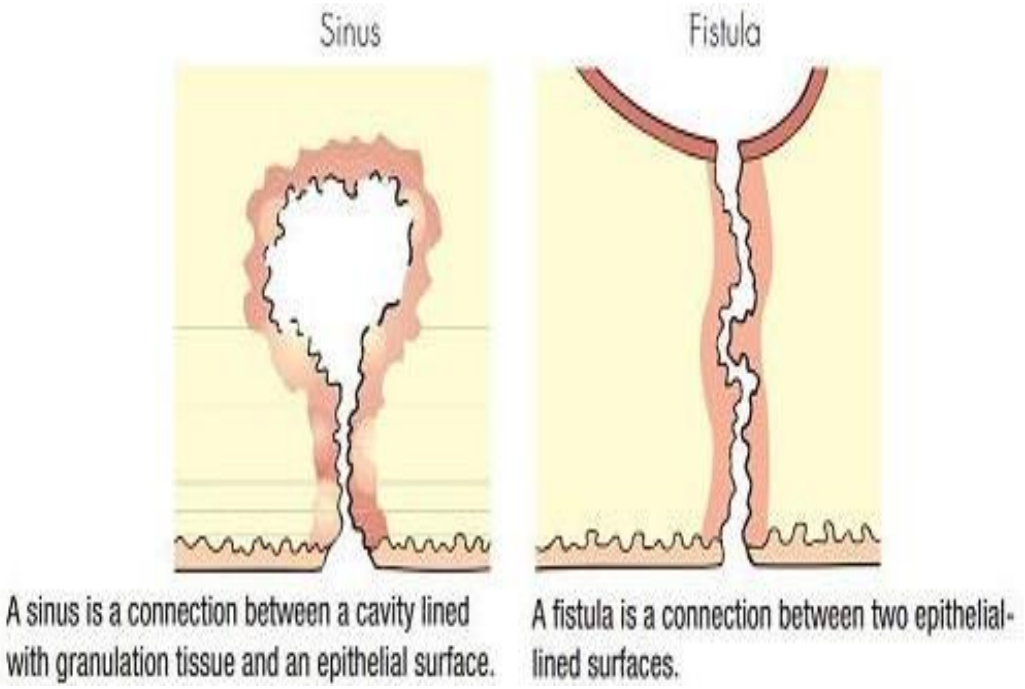
because of the extensive chances of infection from this exudates locality.

John Ardene described the steps of operation for anal sinus in 1339 and following that Charles Felix performed the operation for adequate drainage was emphasized by fercivalpott (18th century). But later studies with ligaturing the tract with strong silk or India rubber ligatures, injections of modification of the classical incision by Fredrick salman followed by Nargan. Miligan and syabrid etc.

DEFINITION OF SINUS:

A sinus is a blind track leading from the surface down to the tissues. There may be a cavity in the tissue, which is connected to the surface through a sinus. The sinus is lined by unhealthy granulation tissue, which may be epithelialised. In Latin "sinus" means – A hollow", a bay" or „gulf.[43]

Figure No 1:



AETIOLOGICAL FACTORS:

- Infection,
- Foreign body.

- Trauma.
- Carcinoma.
- Congenital anomalies.
- Inadequate drainage of an abscess.
- Occupational factors.

CLASSIFICATION:

Pathological sinuses:[44]

Table no.1

Congenital Sinus	Acquired Sinus
Preauricular	Pilonidal
Umbilical	Suture
Urachal	Post- Surgical abdominal or perineal
Coccygeal	Hydradenitis suppurativa
Sacral	Actinomycosis
	Tuberculosis
	Osteomylitis

1. Congenital e.g. Pre-auricular sinus.[45]
2. Traumatic e.g. following trauma a foreign body may be implanted into deep tissue and following infection a sinus may persist.
3. Inflammatory e.g. tuberculosis sinus, osteomyelitic sinus or
4. sinus of a Chronic abscess which discharge pus due toinadequate treatment of acute abscess.
5. Neoplastic e.g.Sinus due to degenerative change have a malignant growth or due to secondary infection of a malignant growth, which was incised for drainage.
6. Miscellaneous e.g. Pilonidal sinus.

ANATOMICAL LOCATION OF SINUSES:

A majority of sinuses occur in the anal region and reason might be.

- Increased chances of infection of the anal glands due toconstant contact with faecal matter.

- Constant exposure of the region to trauma as from horseriding, cycle
- Riding etc.
- The anatomical peculiarities of anorectal region.
- Sinuses are known to occur at the end of long bones following osteomyelitis.
- Root of the helix or tragus on the pinna in the case ofpreauricular sinus(congenital origin).
- Sinuses present at the umbilical region are met with thefollowing aspects,

a. The entry of hairs,
b. Foreign body after operation,
c. Gallstones,
d. Diverticulitis.
e. Carcinoma of the colon.

- In the neck it is presented at the anterior lower third of the sternomastoid muscle in the case of bronchial sinus (congenitalorigin).
- In the thyroid region due to bursting of inflamed thyroglossalcyst.

Clinical features and principles of management:

Sinuses may be asymptomatic. However, they are prone to infection, which may manifest in recurrent or persistent discharge, pain if there is swelling and constitutional symptom the sinus originates from deep-seated, intra-abdominal, pelvic, skeletal or thoracic sepsis.

The sinus should be probed gently to assess the depth, direction presence of multiple tracts. If necessary, a exudates should performed. This involves intubation of the sinus opening wit soft, radiopaque catheter, through which a water-soluble agent such as Hypaque is

injected under image intensificate. This may help to differentiate between a sinus and a fistula.

Commonly Acquired Sinuses:[46]

Post-surgical abdominal and perineal sinuses:

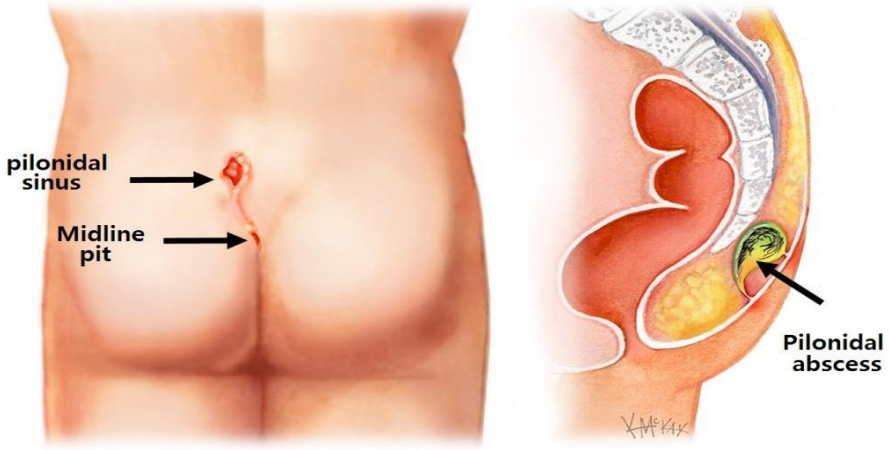
A commonly encountered sinus is the suture sinus, which is the result of non-absorbable suture material acting as a focus of infection within the wound. It is more common after closure of contaminated wounds and tends to be persistent. The occurrence of this type of sinus may be avoided by making sure that knots are tied and buried beneath the subcutaneous tissue. Treatment is by removal of the suture.

Larger sinuses may occur as a result of post-surgical intra- abdominal abscesses or anastomotic leaks. The abscess discharges through the abdominal wall or wound and may form a fistula if the abscess cavity is in continuity with the bowel lumen. The internal opening usually closes leaving a chronic discharging sinus that fails to heal due to inadequate drainage of the abscess cavity.

Perineal sinus:

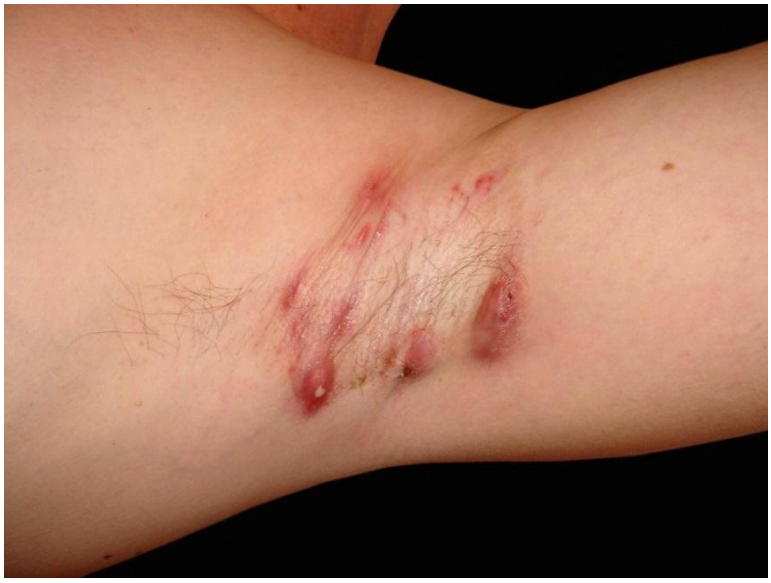
A particularly problematic sinus is the perineal sinus that occurs following proctocolectomy. This is more common after resection for Crohn‟s disease. Following primary closure of the surgical wound, infection usually supervenes a few days later with thedischarge of an acute abscess from the perineum. This is followed by a prolonged persistent perineal discharge secondary to a deep. Seated multiloculated pelvic abscess above the levator plate. Treatment after evaluation by CT and/or sinography consists of opening and decortication of the abscess cavity.

Figure No 2: Pilonidal Sinus



A pilonidal sinus is usually found in the natal cleft. It is thought to arise from loose hair shafts that are shed from the body and migrate to the natal cleft on walking. Thereafter, they are forced into deep tissues by gluteal contractions. Individuals may be asymptomatic initially but with blockage and infection of the sinus develop a painful swelling. This may discharge spontaneously but often recurs if left untreated. The condition may progress with formation of multiple sinus tracts and openings. The most important factor in achieving a successful outcome is adequate excision of the sinus. Although varying techniques, including incision, excision with primary closure, and excision and healing with secondary intention, have been developed to treat the condition, recurrence is common, with rates of up to 40%.

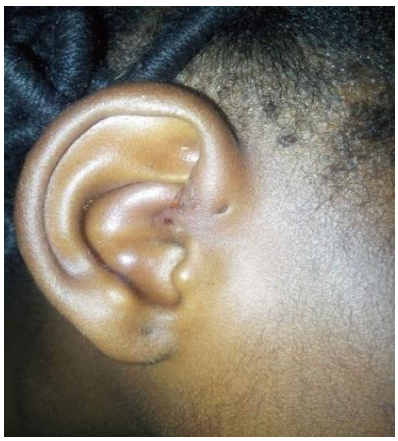
Figure No 3:Hydradenitis Suppurativa:



Hydradenitis suppurativa is an abnormality of the apocrine sweat glands of the body, which are found in the axillae, groins and perineum and around the nipples. It is characterised by the development of recurrent abscesses after puberty. The abscesses may resolve or discharge spontaneously, forming chronic discharging sinuses. Although the condition may improve with low-dose tetracycline, radical surgical excision of the affected area may be required.

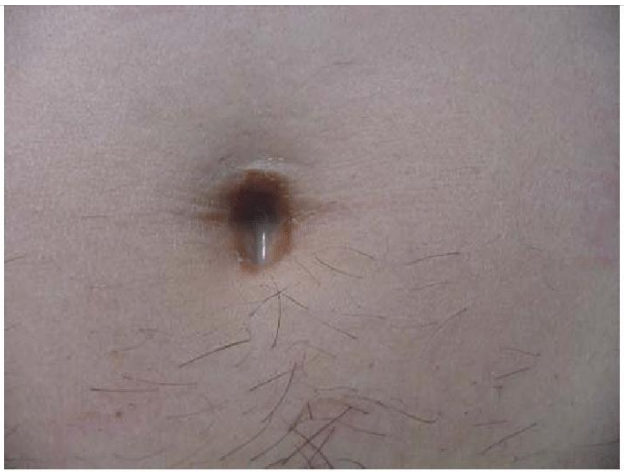
Congenital sinuses:

Figure No 4: Preauricular sinuses



Preauricular sinuses are fairly common and may be unilateral or bilateral. They are usually asymptomatic but may become infected and require incision and drainage and later excision. Complete excision is often difficult because the ramification of these sinuses may be in proximity to the branches of the facial nerve. Excision is recommended only if recurrent infection has become a problem.

Figure No 5 : Umbilical Sinuses:



Umbilical sinuses result from the continued presence of the umbilical end of the vitelline (omphalomesenteric) duct. In the fetus the vitelline duct connects the fetal midgut to the yolk sac. This normally obliterates and disappears completely. However, the fetal duct may persist in part or in its entirety. Close inspection reveals a sinus tract deep to the umbilicus. The morphology of the tract can be readily delineated with a sinogram. Treatment is excision of the sinus.

Urachal sinus:

The urachus is a fetal structure that connects the developing bladder to the umbilicus. It is normally obliterated by the time of birth.A persistent urachal sinus results when the umbilical end of the urachus is not obliterated normally. Such sinuses present as chronic drainage of small amounts of material from the umbilicus. They may become infected and should normally be totally excised.

PATHOLOGY:

Sinus pathology has many factors. Almost in all instances (with the exception of congenital cases), sinus is the result of an internal pathology and draining the resultant material of the pathology to the extension.

The sinus will internally be lined with granulation tissue or epithelial tissue and might be associated with dense fibrosis along the wall of its tract to prevent its collapse. The presents of granulation tissue or epithelial tissue suggest the frequent closure of the sinus. The infective pathology is relevant in case of:

Actniomycosis.

Bilharziasis.

Tuberculosis.

Dracontiasis.

Ulcerative proctocolitis

Lymphogranuloma inguinale with fibrous rectal stricture.

Chron‟s disease of colon or ileum.

Osteomyelitis

SYMPTOMATOLOGY:

The clinical presentation in most instances will be done one or more external openings with a history of discharge and presenting sprouting granulation tissue around the orifice.

Orifice: Slightly elevated with granulation tissue

Pain: Pain might not be a constant features and it will not be there when the track is open. If the track is closed either by foreign body or by the growth of granulation tissue, pressure shoots up in the area of suppuration and pain results. However, in the cases of neoplastic origin, pain is a constant feature in later stages.

Irritation: This complaint is caused by the purulent discharge.

Discharge: It should be examined macroscopically, physically, chemically; and microscopically.Staphylococcal pus is yellow and of creamy consistency whereas Streptococcal pus is watery slightly opalescent and some times it will be stained with blood. Pseudomonas aeruginosa discharges the typical or bluish green pus. Sometimes the sinus might discharge pus containing sulphur granules as in actinomycosis or sequestrum in osteomyelitis or faecal matter, and bile in fistula etc. Association with pus can be understood according to the site of thesinus.

Odour: Coli pus is absolutely colourless with objectionable odour. The odour is thought to be due to the proteoltic properties of the causative organism.

Surrounding stain: There may be a scar in surrounding tissue, which may indicate chronic osteomyelitis or previously healed tuberculosis sinus.

Wall of the sinus: Chronic sinuses will have thick surrounding wall due to presence of fibrosis.

Tenderness: It can be elicited in the sinus track closed due to obstruction.

CAUSES FOR PERSISTANCE OF SINUS:[47]

Presence of foreign body eg.Necrotic tissue, suturing material, hair sequestrum etc.

Non-dependent drainage or inadequate drainage of an abscess.

Inadequate rest during healing time.

Presence of infection.

When the tract becomes epithelialized.

Fibrosis around the wall of the tract preventing it collapse.

Irritant discharges with obstruction distal to the tract.

Presence of malignant disease.

Ischaemia.

Malnutrition.

Crohn‟s disease.

Drugs e.g. steroids, cytotoxics.

COMPLICATION OF SINUS:

The main complication of sinuses is fistula. This is true especially when the sinus is in contact with a hollow viscous internally. Fistula in ano is a striking example, result in the formation of fistula in ano as majority of the sinuses occurs in the peri-anal region. In case of osteomyelitis damaging of the tissue results in the formation of a big cavity.

Sinuses and Fistulae of Peri-Anal Region

As it is known fact that clinical examples of sinuses are more in the peri- anal region.

MANAGEMENT

As sinuses are tubular ulcers penetrating deeper into the tissues the problem confronted by the surgeons in the management aspect are many.

THE PRINCIPLES OF MANAGEMENT:

Removal of obstructive factors.

Laying open the sinus tracts.

Enabling healing to start from the bottom.

Prevention of excess formation of scar tissue to avoid contracture of the part.

Treatment of specific infection.

Prevention of formation of granulation and epithelial tissue as well as removal.

MANAGEMENT TECHNIQUES:

Excision with primary closure.

Laying open the sinus tract to allow healing by secondary intention.

Excision of excessive fibrous tissue.

Curetting the wound by removing the hair, granulation tissue and skin debris to promote adequate

wound healing.

Creation of an INTERNAL OPENING to form a fistula by PROBING. For example, the surgical options for management of a uncomplicated chronic pilonidal sinus include excision with primary closure, excision and laying open the tract, wide and deep excision to the sacrum, incision and marsupialization, and phenol injection.

NON-OPERATIVE AND PARA SURGICAL PROCEDURE:

The Para surgical procedure available at present in indigenous system is Varti, Ksharasutra, oil infiltration therapy etc.

LACUNA IN THE PRESENT DAY MANAGEMENT (ALLOPATHIC):

Higher incidence of recurrence rate.

Excess of scar tissue formation causing severe contracture of the part.

Excessive excision leads to prolapse of supportive tissue and in the case of anorectal sinuses; faecal incontinence is a drawback.

Prolonged hospital stay.

In case of multiple sinuses, total excisions of various tracks are practically impossible due to ineffective identification of minute sinus tracks.

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