

## SINUS FORMATION DUE TO FOREIGN BODIES

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**ABSTRACT ...** [phool@mul.paknet.com.pk](mailto:phool@mul.paknet.com.pk) **Objective:** To evaluate different ways of sinus formation due to foreign bodies. To establish protocol for diagnosis, management and prevention of such Cases. **Settings & period:** Study was conducted in surgical unit B V Hospital Bahawalpur during 2002 to 2003. **Material & Methods:** This was a case series study of 11 patients. Inclusion criteria was presentation with sinus formation and proved to be due to foreign body (FB) were included in the study. Sinus formation due to infected suture material was excluded from the study. All the patients underwent surgical intervention and preoperative and post operative findings were recorded. Microsoft word was used for analysis. **Results:** Total 11 patients were studied 6 were female and 5 male. Seven patients have a previous history of operation and developed sinus due to retained foreign bodies. Four patients had no history of operation. Associated symptoms were, pain 4 patients, fever 2 patients and peritonitis, urinary fistula and intestinal obstruction, one patient each. Foreign body found was sponges 4 patients, stones 2 patients and artery forceps, glass, thorn, pallet and wood particle in one patient each. All patients were treated surgically and have good outcome except in one patient who expired due to peritonitis and MSOF. Three patients have got infection and have a satisfactory outcome after drainage and ASD. **Conclusion:** Sinus formation due to foreign body although uncommon is an under estimated, under reported and preventable condition. Prevention is possible in post operative case and early diagnosis is necessary as the delay in some cases may end up in disaster.

**Key words:** Foreign bodies fistula, Retained foreign bodies, Intra-abdominal textiloma, Gossypiboma.

## INTRODUCTION

Sinus is a blind track lined by granulation tissue and

opening in to an epithelial surface or mucous membrane. There are many reasons for sinus formation like chronic diseases e.g. TB, Chron's

disease etc. Foreign bodies are well known for sinus formation. This is common in area where the peoples are accustomed to walk bare footed like in some rural areas of Pakistan. Neglected Foreign Bodies are notorious for sinus formation. Sometimes the history of sinus formation is delayed.

On one hand the extensive open abdominal surgery has cured a lot of complex surgical emergencies but number of complication has risen on the other hand. Retained abdominal sponge and instruments, although uncommon are underestimated and under reported condition.

The presentation of retained abdominal sponge & instruments is highly variable. Discharge from the wound & postoperative sinus formation is one of them.

The diagnosis is based on :-

1. History & Clinical Examination
2. Plain X-ray of Abdomen<sup>3</sup>
3. Barium meal studies<sup>4</sup>
4. Total leukocyte count
5. Sinugram
6. Ultrasound Abdomen<sup>5,6</sup>
7. Computed Tomography<sup>6,7</sup>
8. Magnetic Resonance<sup>8</sup>

Yet some patients are diagnosed on the operating table<sup>15</sup> during exploration.

Surgical exploration is the answer to the problem. Removal of foreign body, drainage of pus and debridement of dead tissue, peritoneal toilet, drainage of the cavity, and antibiotic coverage after culture sensitivity usually give good results.<sup>5,16</sup>

Post-operative course is usually<sup>6</sup> satisfactory in cases, the pus is localized and the presentation is early.<sup>9</sup> But in cases, the pus is disseminated in the peritoneal cavity and there is peritonitis, toxemia and disseminated intra vascular coagulopathy, the results are not good.<sup>14</sup>

## PATIENT & METHODS

### Study Design:

This is observational case series study.

### Suit & Time:

Study was conducted in a surgical units of Bahawal Victoria Hospital, Bahawalpur during the year 2002-2003. Patients were referred to surgical department with non-resolving discharging sinus.

### Inclusion criteria:

All the patients presenting with sinus formation & proved to be due to FB were included in the study. Patients presenting with sinus formation. Postoperatively due to sponges or surgical instruments were also included in the study. Sinus formation due to infected suture material & mesh were excluded from the study. Patient having Foreign body but have no sinus were also excluded from the study.

History was obtained from the patients themselves and also from their relatives. Patient's presentation to the surgical department of discharging sinus with duration was recorded. Clinical Presentations other than sinus formation (Intestinal obstruction, intra-abdominal abscesses, mass abdomen, generalized peritonitis & pain abdomen) were also recorded. History was also taken regarding the date and place of any previous surgery in details

Duration of onset of symptoms after foreign body was also recorded. Before commencing the operation; hemoglobin, fluid and electrolytes were corrected & antibiotic was given according to culture & sensitivity. Different clinical presentation along with clinical course (operative & post-operative) of the patients was recorded.

Surgical exploration was the answer to the problem, the determining factors for choosing operative procedure were general condition of the patients, site and duration of sinus and associated symptom. Operative and postoperative course was also recorded. The computer program of Microsoft word

was used.

### Test of significance:

As this is observational case series study so no test is applicable.

## RESULTS

Eleven patients presented with sinus formation were included in the study during the period of 01-04-2002 to 31-08-2003. Out of these 6(54.54%) were females & 5(44.46%) were male. The age range was from 14 to 63 years with the average of 33.8 years.

Out of these 7 patients has history of previous surgery due to some other reasons, which lead to sinus due to iatrogenic, retained foreign body, while 4 patients presented with primary complain of sinus formation per see.

No	F.B.Found	Male	Female	Total
1	Sponges	1	3	4
2	Stone	1	1	2
3	Glass	1	0	1
4	Pallet	1	0	1
5	Thorn	1	0	1
6	Artery forceps	0	1	0
7	Wood particle	0	1	0
	<b>Total</b>	<b>5</b>	<b>6</b>	<b>11</b>

Different procedures that were performed in postoperative sinus formation were Hysterectomy (2 patients.), C-Section (1 patient.), Cholecystectomy (1 Patient.), Appendectomy (1 Patient.) & Pylolithotomy (2 Patients.), Duration of presentation was from 5 weeks to 5 years. Associated symptoms presented along with sinus were, pain in 6 patients, fever in 3 patients, intestinal obstruction in 1 patient, entero-cutaneous fistula with peritonitis in 1 patient and urinary fistula in 1 patient.

In 6 patients, sinus was through the wound scar, in 1 patient it was through the drain scar, in 2 patients it was in the sole of foot, in 1 patient it was in the shoulder & in one patient it was in the flank.

In all (100%) cases pus was taken for culture & sensitivity and antibiotic was started accordingly. The diagnosis was made by USG in 5 patients, X-ray in 2 patients, sinugram in 1 patient & on exploration in 3 patients. Surgical exploration was the only answer to this problem. The foreign body found were sponges in 4 patients, stones in 2 patients, thorn, glass, pallet, artery forceps & wood in one patient each.

As the cavity is well localized due to fibrous reaction the surgical out come was good in 7 patients who cured uneventfully. In 3 patients there was wound infection that cured by dressing and antibiotic in two patients, while one patient needed re-exploration & was cured. One patient expired due to peritonitis & MODS on presentation.

## DISCUSSION

Sinus formation due to foreign bodies although uncommon is an underestimated and under reported condition. There has been a recent increase in its recognition because of an influx of Afghan refugees who had no access to the health facilities in their country. Usually the sinus formation is seen in neglected and blindly treated cases, as in our study one patient has received ATT for 9 month. Condition can present after surgery due to retained instruments, stones and sponges (Gossypiboma)<sup>15</sup>. Fortunately it is uncommon and preventable problem. Despite vigilance on the part of surgical and nursing team, this complication does occur and no surgeon, type of surgery or theatre is immune for this complication. The incidence of foreign bodies has been reported in literature as 1 per 1000 to 1500 laparotomies<sup>1,19</sup>. The main cause has been reported to be the retained abdominal sponge after all sort of general surgical, urological, gynaecological and obstetrical procedures.<sup>16,17</sup> Similar to these studies<sup>18</sup>, retained foreign bodies after abdominal operations, sponge is the most common in our series also.

The most important cause of retained abdominal sponge & instrument is the negligence of operating surgeon<sup>10</sup>, nursing staff<sup>10</sup> and theatre personnel.<sup>15</sup> It is their total responsibility to ensure that nothing undesirable is inside the abdominal cavity before closure of the wound. In our study, majority of patients 6 out of 7 were operated initially in the peripheral hospitals (4 patients in private hospitals, 1 patient in district head quarter and 1 patient in tehsil head quarter hospitals).

In these hospitals properly trained nursing staff and theatre personnel may be lacking. A defective instrument/sponge count or a hurried count is the usual cause.<sup>11</sup> In our study 1 patient was operated initially in a teaching hospital in emergency operation theatre. The associated presentation of the patients with retained foreign body in our study was variable in concurrence with the literature.<sup>1</sup> The time frame between the introduction of foreign body and occurrence of symptoms in our study was variable as in literature.<sup>18</sup> The presentation after initial surgery may be acute as in 7 (63.64%) patients in our study with in 1 month<sup>2</sup>, relatively delayed as in 3 (27.27%) patients with in 3<sup>rd</sup> month<sup>2</sup> chronic as 1 (9.09%) patient after 2 years<sup>15</sup>.

The other causes noted for retained sponge/instruments was due to surgical sponge employed in the depth of the wound<sup>15</sup>, for profuse hemorrhage<sup>1</sup> or could be that surgeon left the closure to be done by a junior assistant as reported in the literature.<sup>2</sup>

Pre-operative diagnosis of foreign body with the help of X-Ray ultrasonography, Sinugram and computed Tomography<sup>4,5,6</sup> was made in 8 patients; While 3 patients were diagnosed on exploration.<sup>15,16</sup>

Surgical exploration is the answer to the problem. Eleven patients were operated in our study. The Foreign body incites either an inflammatory process resulting in sepsis and abscess formation or aseptic response that creates adhesions and encapsulation<sup>1,16</sup>. As the cavity is well localized the post operative surgical outcome is good. Other treatment options are ultrasound assisted removal<sup>20</sup>, laparoscopic

removal<sup>21,22</sup>, per cutaneous removal of intra-abdominal sponge<sup>23</sup> and endoscopic removal if the surgical sponge/instrument is in a hollow viscera.<sup>3</sup>

## CONCLUSION

Usually the sinus formation is seen in neglected cases. Retained foreign body is an iatrogenic surgical complication, the incidence of which is grossly underestimated and seldom reported.<sup>1</sup> All preventive measures should be taken to avoid this; as no excuse is justifiable. Prevention of foreign body is better than cure.

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