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Original Article

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Regenerative Methods in Pressure Ulcers

Barath kumar singh[1], Neljo Thomas[2], Ravi Kumar Chittoria[3]

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Abstract

Pressure ulcers are the common problem in the bed ridden and Intensive care patients in any hospitals. In initial stages, if proper prophylaxis and attention not paid it may progress to deep ulcers. Pressure ulcers are difficult to treat, various regenerative methods of pressure ulcers will be described in this article.

Keywords: Pressure ulcers; Regenerative medicine; Bed sores.

INTRODUCTION

Pressure ulcers, also known as pressure sores, bed sores or pressure injuries, are localized damage to the skin andor underlying tissue that usually occur over a bony prominence as a result of usually long-term pressure, or pressure in combination with shear or friction. The most common sites are the skin overlying the sacrum, coccyx, heels, and hips, though other sites can be affected, such as the elbows, knees, ankles, back of shoulders, or the back of the cranium.[1,2]

MATERIALS AND METHODS

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A. In this case report, a 25 years old male came with complaints of ulcer in the left ischial region. Patient had history of fall from tree following which he developed acute flaccid paralysis of lower limbs and spinal surgery was done for the same. He had history of pressure ulcers in sacral region which healed spontaneously and right ischial region which was treated with skin flap. The patient developed swelling in the left ischial region which gradually increased in size and ruptured developing into an ulcer. On examination ulcers were present at bilateral ischial region, pus and slough was present and bone was exposed (Fig. 1). Decreased sensation and decreased power of lower limbs was present. Swab was taken for pus culture and sensitivity showed growth of proteus vulgaris. Biopsy of the ulcer was done and histopathology in the right ulcer was found to be hyperkeratotic acanthotic epithelium with focalulceration and right ulcer was skin with acanthosis parakeratosis with follicular plugging. PAS and GMS stain negative for any organisms. During the course of the hospital stay he was treated with wound debridement (Fig. 2),Collagen granules (Fig. 3), insulin spray (Fig. 4), prolotherapy (Fig. 5), APRP, LLLT (Fig. 6), Vit D

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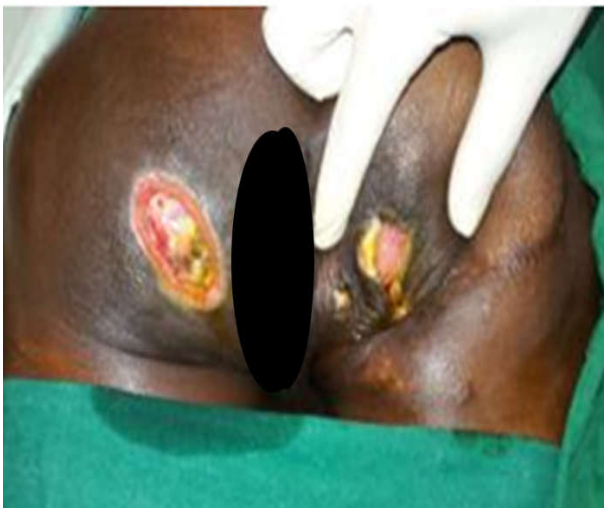


Fig. 1: Wound at Presentation.

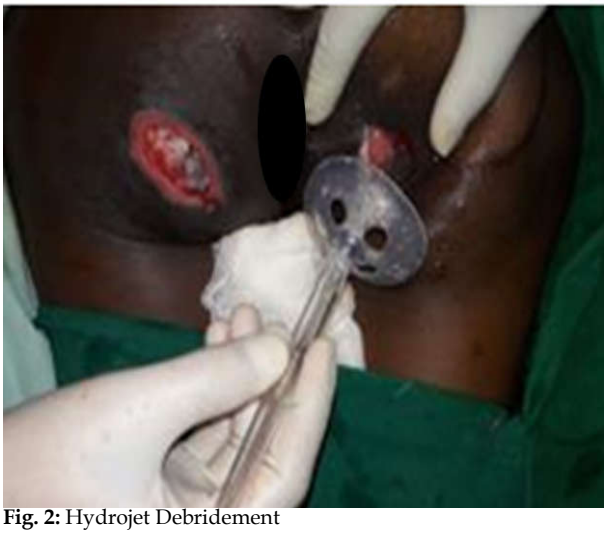


Fig. 2: Hydrojet Debridement

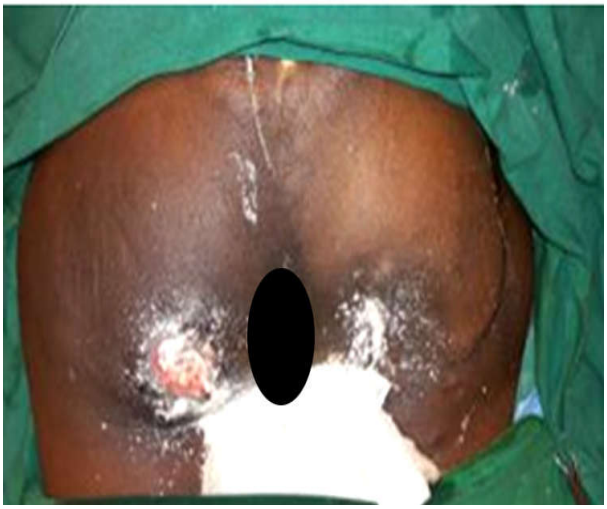


Fig. 3: Application of collagen granules

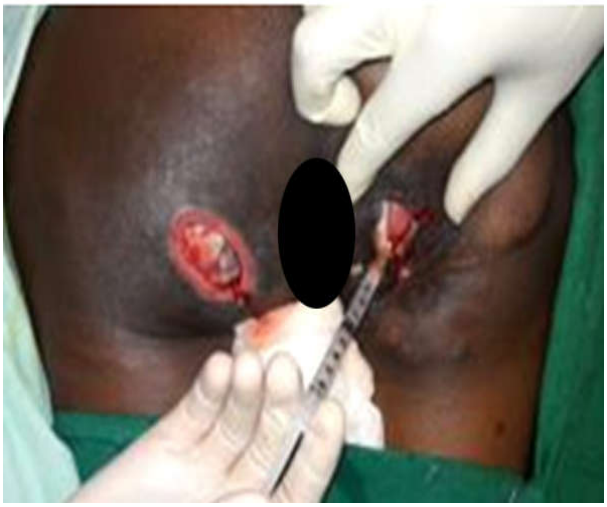


Fig. 4: Insulin therapy

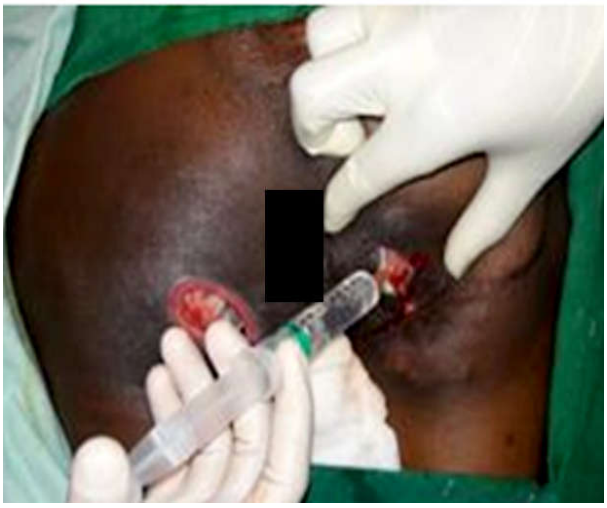


Fig. 5: Prolotherapy

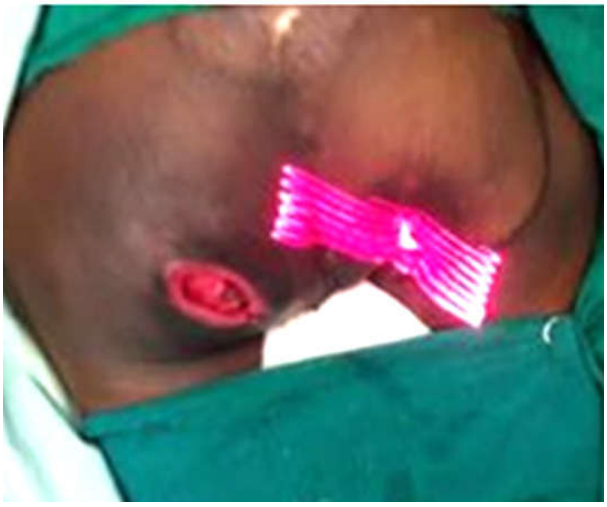
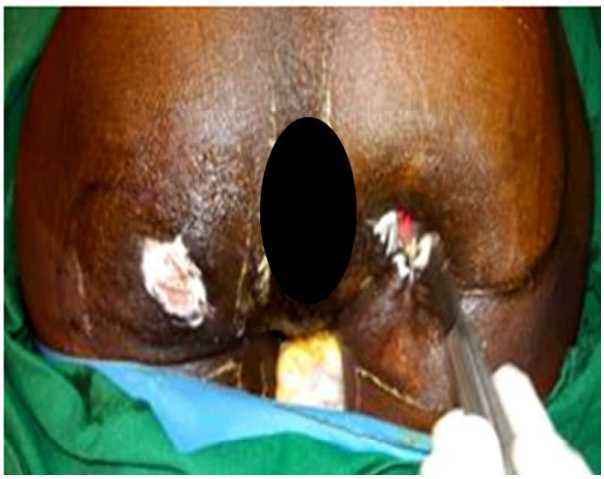


Fig. 6: Application of Low level laser therapy



`**Fig. 7:** Sucralfate therapy

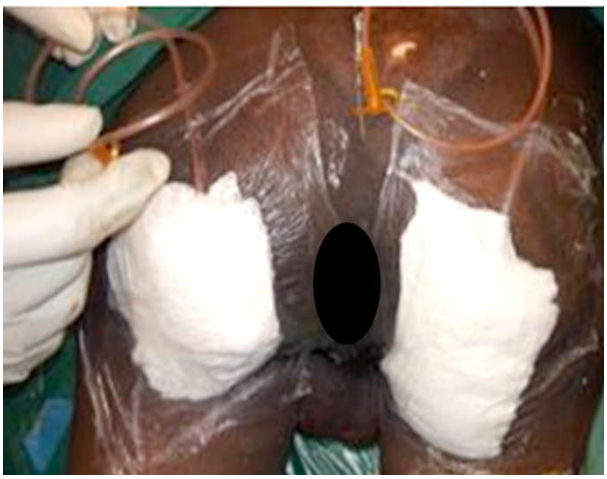


Fig. 8: Negative Pressure Wound Therapy

therapy , Sucralfate therapy (Fig. 7), RONPT therapy (Fig. 8), phenytoin therapy. Patient is further planned for Posterior thigh VY advancement flap on the left side. Patient recovered well and was discharged from hospital.

RESULT

Pressure ulcers are treated with the various methods for regeneration of the tissues. Pressure ulcer treated with the multiple therapies found to be useful in the process of regeneration of tissues in the pressure ulcer. Patient was compatible with all regenerative methods. The methods mentioned for the tissue regeneration are easily adaptable and reproducible in any other hospital for pressure ulcers.

DISCUSSSION

Pressure on soft tissue that entirely or partially obstructs blood flow to the soft tissue can lead to pressure ulcers. Shear can strain on the blood vessels that supply the skin, which is another cause[3,4]. People who are immobile, such as those who are frequently in a wheel chair or on pro-longed bedrest, are more likely to develop pressure ulcers. It is commonly accepted that other factors may affect how well skin can with stand pressure and shear, raising the possibility of pressure ulcer development[5]. These include under nutrition in protein and calories, microclimate (sweating or incontinence related skin wetness), disorders that lower blood flow to the skin, such as arteriosclerosis, or diseases that lower skin sensibility, such as paralysis or neuropathy. Age, illnesses (such as arteriosclerosis, diabetes, or infections), smoking, or medications like anti-inflammatory drugs can all impair the healing of pressure ulcers[6].

Pressure ulcers can be exceedingly difficult to prevent in critically sick patients, elderly seniors, and people with limited mobility such as wheelchair users, despite the fact that they are frequently preventable and treatable if discovered early (especially where spinal injury is involved). The main method of prevention is to regularly rotate the person to redistribute pressure.[7,8] Since at least the 19th century, turning is well known to help prevent new sores. A balanced diet with enough protein and protecting the skin from urine and faces are crucial in addition to rotating and repositioning the client in the bed or wheel chair.[9]

Pressure sores, venous stasis, diabetic ulcers, traumatic wounds, and burs have all been treated with phenytoin. Through a variety of methods, including stimulation of fibroblast proliferation, facilitation of collagen deposition, glucocorticoid antagonistic activity, and antimicrobial activity, phenytoin aids in wound healing. According to a study, phenytoin helped a large necrotizing soft tissue wound recover after other treatments had failed to help it.[8,9]

By controlling oxidative and inflammatory reactions, topical insulin promotes faster wound healing. Reactive oxygen species, which have negative effects on lipids, proteins, and DNA, are reduced by insulin treatment. Additionally, topical insulin causes early neutrophil recruitment and reduces inflammation in wounds by raising macrophage numbers and IL-10 levels to get rid of dead tissues.[10] By controlling MCP-1 expression at wound sites, insulin regulates the chemotaxis and phagocytosis of macrophages as well as the release of inflammatory mediators. Insulin used topically promotes keratinocyte migration, speeds up re-epithelialization, and heightens fibroblastic response.[11]

In prolotherapy, an irritant is injected or sprayed into the wound to create an inflammatory response that is thought to speed up the healing process. Dextrose, with concentrations ranging from 12.5% to 25%, is the most used prolotherapy drug used in clinical practice. Because it is water soluble, a normal component of blood chemistry, and can be safely injected into numerous locations in huge quantities, dextrose is regarded as the ideal proliferant.[12,13] Hypertonic dextrose solutions work by causing local tissue trauma at the injection site, which draws granulocytes and macrophages and aids in the healing process. In this post, we discuss our experiences managing pressure ulcers using prolotherapy. Proponents of the technique hold the view that the injection of hypertonic dextrose causes cell dehydration and osmotic rupture at the injection site, which results in local tissue injury and induces granulocyte and macrophage migration to the site, with release of the growth factors and collagen deposition. The precise mechanism of prolotherapy is unknown. Dextrose concentrations as low as 5% have been demonstrated to induce the production of a number of growth factors necessary for tissue repair in in vitro tests. PDGF, TGF, EGF, b-FGF, IGF-1, and CTGF are a few of these growth factors. Studies conducted in vitro have demonstrated that cells grown in high glucose growth media can produce more PDGF14. In skin wounds, PDGF promotes angiogenesis, fibroblast proliferation, and extracellular production, among other pro-reparative actions. High glucose levels also increase TGF- expression. Inflammation, angiogenesis, fibroblast proliferation, collagen synthesis, matrix deposition and remodeling, and wound epithelialization are just a few of the processes that TGF- is involved in during the healing process. EGF, b-FGF, IGF, and CTGF are other growth factors that are elevated by high glucose levels. Each of these proteins performs a variety of preparative tasks and promotes healing in various animal models of defective wound healing.[15]

The terms low power lasers (LLL), soft laser, cool laser, bio stimulating laser, therapeutic laser, and laser acupuncture are also used to refer to LLL. LLLT has analgesic and anti-inflammatory properties in addition to stimulatory effects on tissue regeneration, wound healing, and repair[16]. At the cellular level, the LLLT stimulates cell growth, increases fibroblast proliferation, decreases the formation of fibrous tissue, promotes cell regeneration, increases the production of collagen, decreases the formation of oedema, increases the synthesis of growth factors, decreases the number of inflammatory cells, decreases the synthesis of inflammatory mediators like substance P, bradykinin, histamine, and acetylcholine, and stimulates the production of nitric oxide The power, wave length, and duration of LLLT treatment all affect the photobiological effects. Gallium Arsenide Ga-As, Gallium Aluminium Arsenide, Krypton, Helium Neon He-Ne, Ruby, and argon are among the regularly utilized LLLT LASERS. It has been utilized to manage burn wounds as well as acute and chronic pain, wrinkles, scars, hair loss, and photo rejuvenation of photo damaged skin. Due to its bio stimulatory qualities, LLLT has been demonstrated to be beneficial as an adjuvant therapy in the care of wounds. Pressure sore treatment using low-level laser therapy (LLLT) can enhance and hasten the healing process.[17]

The foundation of tissue expansion is the idea that all living tissues react dynamically to mechanical stress. The phenomena of biological creep and physiological creep are included in tissue expansion. The use of this technique has increased since it was first proposed by Neumann and made popular by Radovan and Austad. These ideas are not just applicable to the skin; they have also been applied to bones. Internal tissue expansion is not without difficulties, though. The protracted duration, cosmetic deformity, and the requirement that the field be free of infection are the most crucial elements. Internal tissue growth is therefore only seldom useful for covering raw areas. The development of external tissue expansion was made possible by this. Numerous methods for expanding external tissue, such as negative pressure and various expansion tools like Wise Bands and Derma-Close, have been documented. Rubber bands and blouse hooks, which are both readily available items, can also be employed for this therapy.[18,19]

Studies and rare case reports all show that topical sucralfate therapy is effective for treating wounds. Sucralfate suppresses the release of interleukin-2 and interferon-gamma damaged skin cells while promoting the growth of dermal fibroblasts and keratinocytes in vitro. Sucralfate has a physical barrier effect that reduces inflammatory response and promotes mucosal repair. Additionally, sucralfate promotes angiogenesis, which speeds up wound healing. Sucralfate raises the levels of basic fibroblast growth factor (bFGF) and epidermal growth factor in the wound. Similar to how heparin stabilizes blood clots, it binds with bFGF. Small blood vessel development is induced by stabilized bFGF, and cell division in fibroblast and epidermal cells is triggered. Additionally, sucralfate promoted the release of IL-6 and PGE2 from skin cells, which aided in the healing process.[20]

According to the literature, negative pressure wound therapy is thought to have four main

mechanisms of action: contraction of the wound, stabilization of the wound environment, removal of extracellular fluids, and micro deformation at the foam-wound interface.[21,22] It has been widely used to treat wounds, particularly pressure ulcers and diabetic foot ulcers.

CONCLUSION

Our experience in management of Pressure sores has showed to have positive results with usage of methods such as sucralfate cream application, platelet rich plasma application, low level laser therapy, and split thickness skin graft. There was significant improvement noted with the above methods in healing of raw areas. However, to strengthen the concept, multicentric experiments with a larger sample size are required.

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Review Article

Gastroenterology International
Volume 7 Number 2, July - December 2022

Thomash Alvarado Score a Diagnostic Tool for Areas a Diagnostic Tool for Areas in Peripheries where Non Availability

Mayank Chugh[1], Satender Tanwar[2], Jaideep Bagri[3], Subham Sharma[4]

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Abstract

Acute abdomen is an emergency condition that warrants urgent attention and stabilisation. The varied a etiology causes acute abdomen viz., an infection, inflammation as well as other a etiology. The patient will usually present with sudden severe onset of abdominal pain with associated nausea or vomiting. The approach to a patient with an acute abdomen should include a through history physical examination limited investigation as per the centre permits. But in case of if you are sitting at the periphery and need the urgent investigation and not available then you need something to help you out a score which is desirable and acceptable.

In case of acute abdomen, location of pain is critical as it may signal a localized process. The similar score has been discussed here, which has the high significant ratio to diagnose the disease. Thomash Alvarado score of 5 or 6 is compatible with the diagnosis of AA, a score of 7 or 8 indicates amight have appendicitis, a score of 9 or 10 indicates a more confirmed appendicitis. These kind of score such as Thomash Alvarado Score, which help you out to reach the diagnosis approximate accuracy when the advanced investigations not available and out of reach.

The combination of laboratory, examination and history all together help to reach the diagnosis.

Keywords: Appendicitis; Acute Abdomen; Thomash Alvarado score.

INTRODUCTION

Acute abdomen is an emergency condition that warrants urgent attention and stabilization. The varied a etiology causes acute abdomen viz., an infection, inflammation as well as other etiological variations. The patient will usually present with sudden onset of severe abdominal pain with associated nausea or vomiting. The approach to a patient with an acute abdomen should include a through history physical examination limited investigation as per the centre permits.

But in case of if you are sitting at the periphery and need the urgent investigation and not available then you need something to help you out a score which is desirable and acceptable. The similar score has been discussed here, which has the high significant ratio to diagnose the disease. In case of acute abdomen, location of pain is critical as it may signal a localized process. These kind of score such as Thomash Alvarado Score, which help you out to reach the diagnosis approximate accuracy when the advanced investigations not available and out of reach.

The combination of laboratory, Examination and History all together help to reach the diagnosis. Migrating Abdominal pain Anorexia Nausea or vomiting Tenderness in the lower quadrant, Rebound tenderness Fever Leukocytosis,

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Neutrophilia, with shift to left more than 75%. Out of these two most important factors, tenderness in the right lower quadrant and leukocytosis, are given two points, and the six other factors are assigned one point each, for a possible total score of ten points.

Appendicitis is usually managed as per the standard protocol the mild appendicitis could be managed with the broad spectrum antibiotics, keeping the patient nil per orally and later on with Intravenous fluids as well as symptomatic management, patient with persisting pain and toxemia need urgent surgical intervention and management either open and laparoscopically.

Although acute appendicitis is a common ailments anyone of the age group of the either sex develop these and has the feature early as the severe pain abdomen, vomiting and the nausea and the rebound tenderness, which later on confirmed with the USG and laboratory finding altogether. Abdominal bloating Flatulence. The Alvarado score can be used to stratify patients with symptoms of suspected appendicitis.

Various studies in Medline, Embase, DARE and The Cochrane has been conducted at various level and which serve as the key point for the diagnosis. The study conducted at various level at different institutes gives us the conclusion of the diagnosis. The specificity and sensitivity of the various studies varies for 56%-74%. The data varies according to the clinical prodromal of the institute.

The Alvarado score is well calculated in patients across all risk strata (low RR 1.06, 95% CI 0.87 to 1.28; intermediate 1.09, 0.86 to 1.37 and high 1.02, 0.97 to 1.08). The Alvarado score is a useful diagnostic 'rule out' score at a cut point of 5 for all patient groups.

CONCLUSION

Acute Abdomen is a magic box the single examination, blood investigation and all doesn't fetch you anything which requires drastic evaluation and need to be verified with all the details that usually takes the combination of the all, all the parameters then combined together helps to make the exact diagnosis. Thomash Alvarado score discussed here is great useful score in case of emergency patient receive with acute abdomen and need the evaluation done at different level.

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Case Report

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Falciparum Malaria a Unusual Presentation in Foreign Returned (South Africa) Person Infected with Malaria

[1]Mayank Chugh, [2]Satender Tanwar, [3]Hitesh Dudeja

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Mayank Chugh, Satender Tanwar, Hitesh Dudeja/Falciparum Malaria a Unusual Presentation in Foreign Returned (South Africa) Person Infected with Malaria/Gastroenterology International. 2022;7(2):53-54.

Abstract

Plasmodium falciparum is a unicellular protozoan parasite of humans, and the deadliest species of Plasmodium that causes malaria in humans. The parasite is transmitted through the bite of a female Anopheles mosquito and causes the disease's most dangerous form, falciparum malaria. It is responsible for around 50% of all malaria cases P. falciparum is therefore regarded as the deadliest parasite in humans.

As of the World Health Organization World Malaria Report 2021, there were 241 million cases of malaria worldwide in 2020, resulting in an estimated 627,000 deaths. Nearly all malarial deaths are caused by P. falciparum, and 95% of such cases occur in Africa. Children under five years of age are most affected, accounting for 80% of the total deaths. In Sub-Saharan Africa, almost 100% of cases were due to P. falciparum, whereas in most other malarial countries, other, less virulent plasmodial species predominate.

Keywords: Fever; Hepatitis; Falciparum; Malaria; Thrombocytopenia; WHO; Thrombocytopenia.

INTRODUCTION

Falciparum malaria was familiar to the ancient Greeks, who gave the general name πυρετός (pyretós) "fever". It was the Romans who named the disease "malaria" mala for bad, and aria for air, as they believed that the disease was spread by contaminated air, or miasma.

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Benign tertian malaria by Haemamoeba vivax (now P. vivax), and quartan malaria by Hemamoeba malariae (now P. malariae). The valid genus Plasmodium was created by two Italian physicians Ettore Marchiafava and Angelo Celli in 1885. The Greek word plasma means "mould" or "form"; oeidēs meaning "to see" or "to know." The species name was introduced by an American physician William Henry Welch in 1897.[15] It is derived from the Latin falx, meaning "sickle" and parum meaning "like or equal to another".

CASE REPORTS

- A Young male 32 years with no comorbid, presented with fever with chills, had a history of falciparum malaria infestation in South Africa and later on treated with the anti-malarials Artesunate as standard Course and later has been discharged.

- After the discharge the patient again started with fever and chills and evaluated and found to have the deranged LFT.
- Patient admitted and in view of previous Falciparum positive started with Anti-Malarial and standard supportive care given. Regular LFT monitoring and Platelets monitoring done, patient evaluated and responded well with the proposed line of treatment.

Investigations:`

Sr no	Date	SGOT	SGPT	Total Bil	Platelets
1.	20/08	256 Iu/l	278 Iu/L	2.98 mg/dl	56000/ Cumm3
2.	23/08	128Iu/l	184Iu/L	2.18 mg/dl	94000/ Cumm3
3.	25/08	96Iu/l	112Iu/L	1.80 mg/dl	126000/ Cumm3
4.	26/08	42Iu/l	65Iu/L	1.02 mg/dl	145000/ Cumm3

Treatment Given:

1. Inj. Artesunate 120 Mg + 100 ml NS as per standard Protocol.
2. Inj. Pracetamol 100 ml TDS.
3. Inj. PPI 40 Mg IV BD.
4. Inj. Emeset 4 Mg TDS.
5. Tab Doxycyxline 100 mg TDS.
6. Intravenous Fluids Maintenance
7. Supportive Treatment.

DISCUSSION

Even after the much of developments and medical advancements the malaria is one among the infectious agents and causing mortality. Throughout the globe. The case discussed here suggestive of incidence and prevalence of the Malaria most common type Falciparum in South Africa. Timely diagnosis and management still holds goods at that part to manage the patient.

CONCLUSION

The case presented here shows the significance of malarial infection and importance of the anti-protozoal in the case which is drug of choice. Case discussed here suggestive of malarial infestation along with significant thrombocytopenia and disarranged LFT.

Patient managed with standard antiprotozoal and responded well and planned for discharged with regular follow up.

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Case Report

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Ileoileal Knotting: A Rare Casue for Instestinal Obstruction

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Abstract

Rare causes of intestinal obstruction include intussusception, volvulus, knotting and internal herniations. This is an elderly female patient presented to us on 7th day of intestinal obstruction with only abdominal distension and vomiting and no peritonitis. This is found to be an ileoileal knotting without adhesions or loaded mass. Ileoileal knotting is a rare condition and ileosigmoid is more common. We are presenting the radiological findings and per operative findings of this case because of its rarity.

Keywords: Bowel knotting: Ileoileal obstruction; Intestinal obstruction; Ileoileal knotting.

INTRODUCTION

Falciparum Acute intestinal obstruction is a common emergency accounting for 15% of all emergency cases of acute abdomen[3]. The common causes of intestinal obstruction that comes are adhesions (40%) Hernia obstruction 30% and neoplasms constitute nearly 10% and intussusception less than 5% volvulus another 5%.[1,3] The rare causes are abscess, gall stones, worms, foreign bodies and the idiopathic pseud obstruction syndrome and bowel knotting.

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Intestinal knotting is occurring by twisting of bowel and forming a knot which may act like mechanical bands or intussusception. Common knotting is ileosigmoid knotting and very rare is ileoileal knotting. We are presenting a case of ileoileal knotting presented as intestinal obstruction in 70 yrs. old female. The literature review indicates that this is very rare to highlight its importance, mechanism and difficulty in diagnosis.

CASE REPORTS

70 yrs. old female patient came to emergency with history of pain abdomen for 1 week for which she was treated as intestinal colic. She underwent total abdominal hysterectomy with bilateral oophorectomy 3 months back and postoperative period was uneventful.

For 1 week she had colicky abdominal pain especially in periumbilical region and associated with occasional vomiting and constipation. For which she was treated conservatively in a hospital

and she developed absolute constipation and features of intestinal obstruction and brought in a dehydrated morbid stage.

Clinical examination revealed dehydrated patient with BP 80/50mm of Hg 99° F temp and tachycardia of 120/min. Abdomen distended with visible peristalsis around the umbilicus with a vague mass.

Per rectal examination ballooning with no fecal matter. Emergency Ryles tube aspiration yielded 400 ml of feculent fluid with foul smelling and distension reduced a bit.

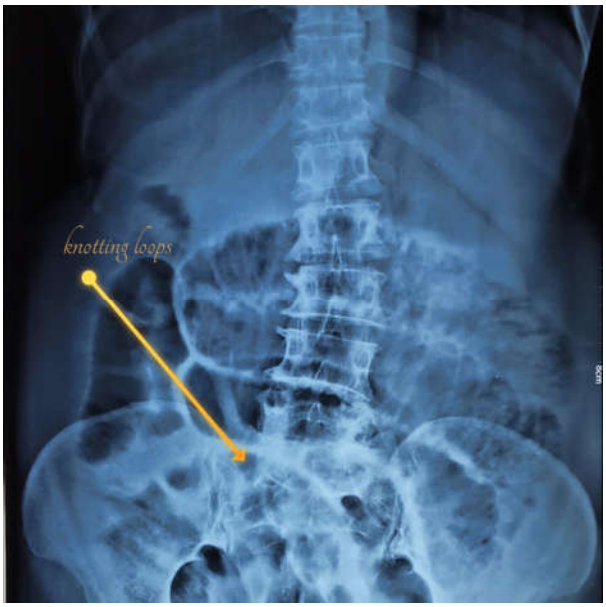

Fig. 1: Xray abdomen showing dilated loops.

CT showed vaguemass periumbilical region. Contrast could not be given due to elevated Creatinine of 3 mg.

Management

After correcting dehydration patient was subjected for Laparotomy

Findings: 1. The small bowel was distended with fluid up to distal ileum

2. There was a knot of ileum producing obstruction with no adhesions or masses.

The knot is released and the bowel decompressed. There was no adhesions or mass or loaded bowel to induce the knotting. Patient had smooth post operative period and recovered, Follow up after 3 months patient was doing well without any complaints.

Investigations:

Electrolytes showed normal values, ECG showed Left bundle branch block

Plain X-ray abdomen: showed multiple fluid levels and hazy appearance of the abdomen

USG. Features suggestive of intestinal obstruction with small bowel dilated up to the terminal part of ileum

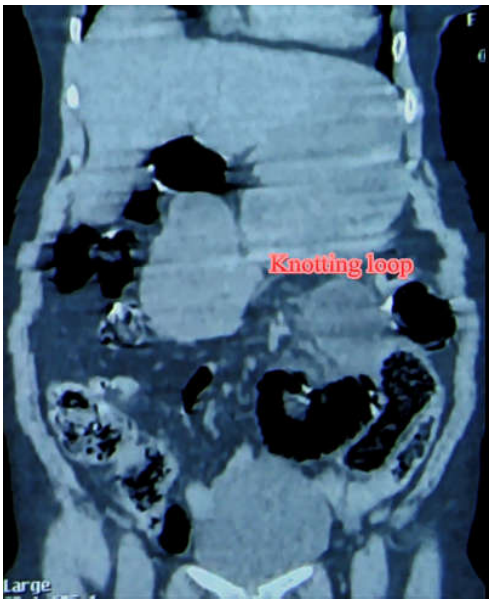

Fig. 2: CT showed mass like appearance

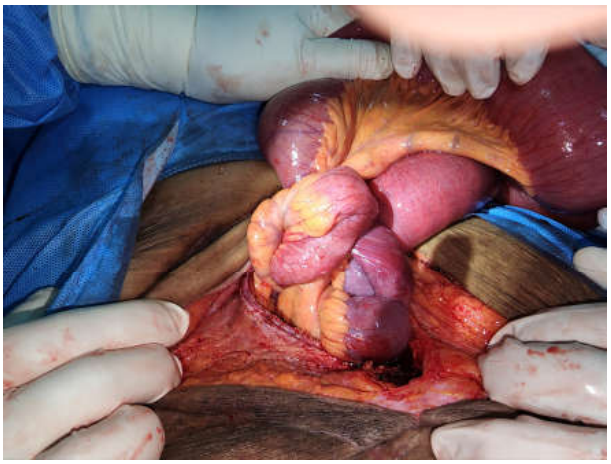

Fig. 3: Peroperative photo

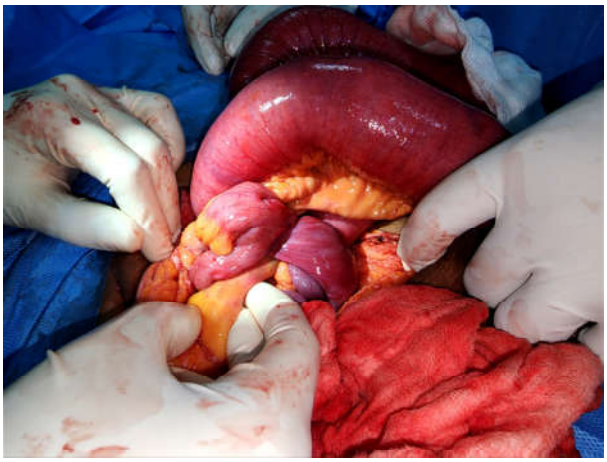

Fig. 4: Peroperative the knot.

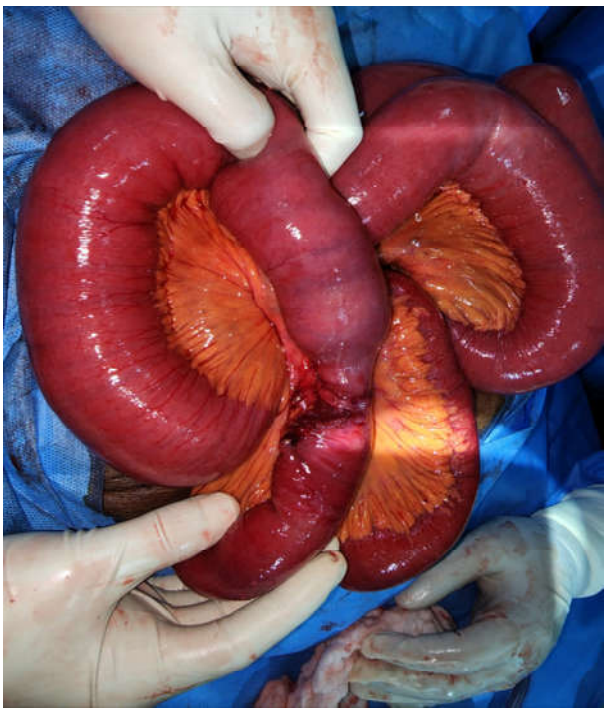

Fig. 5: After releasing the knot

Discussion

Intestinal knotting is a rare cause for intestinal obstruction. The commonest type is ileosigmoid.[1,2] When mobile jejunum and ileum moves around the sigmoid with a long mesentery a knot can be formed with 2 blind loops. Here the predisposing factors may be loaded bowel, sudden twisting movements of bowel, pregnancy shifting the bowel, mass shifting the bowel, adhesions and intussusception.

Of all knotting of bowel 98% cases reported are ileosigmoid and only 15 cases reported after 19713. In our case may be the adhesions which predisposed for the twisting of bowel with knotting. In our cases the patient reported after 4 days and literaturesays the reporting time on an average is 2 days.[1,3] The diagnosis of intestinal knotting preoperatively is extremely difficult. It is always diagnosed intraoperatively. The usual presentation will be that of an acute abdomen with sudden-onset abdominal distension.[3,4] A plain x-ray of the abdomen in erect posture will demonstrate the features of intestinal obstruction. CT of the abdomen and pelvis may be done where necessary.

The emergency management of dehydration, electrolyte correction and renal function improvement before surgery is mandatory. The knot is untied and the vascularity of the bowel is assessed and decision on resection may be taken. If the ileoileal knot if more than 10 cm is available after resection we may go for a ileocolic anastomosis. On our case the bowel was viable and hence no procedure other than decompression of the bowel was required.

CONCLUSION

Bowel knotting is a rare condition and commonest is ileosigmoid knotting. We had a case of ileoileal knot which reported after 1 week of symptoms operated and the bowel survived without resection. We are presenting the case due to rarity and difficulty in clinical decision and radiological decision making.

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