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RESEARCH ARTICLE

MANAGEMENT OF POLYTRAUMA IN CASES OF SUSPECTED SUICIDAL FALLS IN COVID-19 PANDEMIC - A CASE SERIES

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Abstract

Introduction: The most challenging hurdle faced by national health systems worldwide in the last century is the ongoing COVID 19 pandemic. Initial cases of atypical pneumonia of unknown origin started in Wuhan, Hubei province, China which started the outbreak of COVID 19 in December 2019. This infection later on spread to rest of the world.

Case series: Here we present a series of 3 patients who came to our casualty with polytrauma after a suspected suicidal fall from height. The patients were managed by adequate surgical interventions. Postoperative physiotherapy started with gradual mobilization. We did a psychiatric reference and proper counseling of all 3 patients patients both pre and postoperatively.

Conclusion: We conclude that this COVID-19 pandemic has taken a great toll both physically and mentally on people in the form of increased mortality and morbidity as shown daily in media, increased unemployment and strict self isolation has further put a strain on people's mind leading to psychiatric disorders and suicidal behaviour. This has increased cases of polytrauma due to suspected suicidal falls. We have adequately treated such patients who came to our institute operatively and with psychiatric support.

Introduction:-

The most challenging hurdle faced by national health systems worldwide in the last century is the ongoing COVID 19 pandemic. Initial cases of atypical pneumonia of unknown origin started in Wuhan, Hubei province, China which started the outbreak of COVID 19 in December 2019. This infection later on spread to rest of the world.This led to increase requirements of ICU beds and ventilators with oxygen support.[1]

SARS-CoV-2 mainly spreads through droplet infection by respiratory route. It can even transmit through contact and fomites.[2]

The restrictions imposed due to social distancing, buisnesses and daily wage workers have suffered a major loss. There have been extensive job losses globally. Unemployment alone accounts for three folds increased relative risk of suicidal deaths when compared with employed population. This has caused the steepest economic downturn.[3]

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Early prevention measures and crisis care like sustained welfare spending, labour marketing programs, adequate funding and access to mental health services help in such depressing situations.[3]

Self isolation due to social distancing leads to loneliness which has cut social connections for various people with friends and relatives which usually play a vital role in prevention of suicidal thoughts and ideation.[4]

In these times, surgical service guidelines need to balance and support the hospital resources to minimize the risk of nosocomial transmission of COVID 19.[5]

Case series

1) A 17 years old female brought to casualty with history of fall from third floor of her building with loss of power in bilateral lower limbs and trauma to low back, left arm and left wrist. Her primary treatment was done at local hospital and then referred to us for further management. Her x rays revealed L2 compression fracture, left humerus shaft fracture and left distal end radius fracture as seen in fig.1. No history of trauma to head, chest or abdomen. On examination the patient has paraplegia, mute deep tendon reflexes, hypoaesthesia below L2 with bowel and bladder involvement. She had a sutured wound over medial aspect of left arm and her left radial pulse was not palpable.

The patient was immediately posted for left humerus interlocking nail with brachial artery exploration and thrombolectomy by vascular surgeons and nerve examination by plastic surgeons. The radial pulse returned immediate postoperatively with good finger movements.

In next sitting, posterior lumbar decompression and instrumentation was done with pedicle screws. Dural tear was repaired with prolene 5.0. Left distal end radius volar plating was done in same sitting. Postoperative x rays are sown in fig. 2.

Patient was started on postoperative physiotherapy with gradual bedside mobilization with lumbar corset belt. Gradual weight bearing on walker started.

2)A 19 years old female brought to casualty with history of fall from second floor of her building with trauma to low back and right hip. Patient had back ache radiating to right lower limb with tingling. No history of trauma to head, chest or abdomen. Patient was a known case of psychiatric disorder, on medications. X rays revealed L1 compression fracture with right acetabulum fracture as seen in fig. 3.

Patient was operated with posterior lumbar decompression and instrumentation with pedicle screws with anterior and posterior acetabular plating as seen on x rays in fig.4. Patient was started on postoperative physiotherapy and bedside mobilization with lumbar corset belt. Gradual weight bearing on walker started.

20 years old female brought to casualty with history of fall from fourth floor of her building with trauma to face, left elbow, left wrist, bilateral knees, left leg and bilateral feet. Patient was initially admitted under general surgery for management of ENT bleed and difficultly in breathing, for which she was tracheostomised and necessary splintages were given from our side. After stabilization, patient was transferred to us for further bony management. Clinical examination and X rays revealed left distal humerus compound grade 2 fracture, left distal end radius fracture, bilateral distal femur fracture, left distal tibia compound grade 2 fracture and bilateral calcaneum fractures as seen in fig. 5 and 6.

She was then operated with left elbow spanning external fixation with distal end radius k wiring and left distal tibia tens nailing in one sitting and left distal femur biological plating in second sitting. Postoperative follow-up x rays at 2 months seen in fig.7.

Her right distal femur and bilateral calcaneum fractures were conserved due to minimal displacement and poor general condition.

Patient was started on postoperative physiotherapy and bedside mobilization.

We did a psychiatric reference and proper counselling of all 3 patients patients both pre and postoperatively.

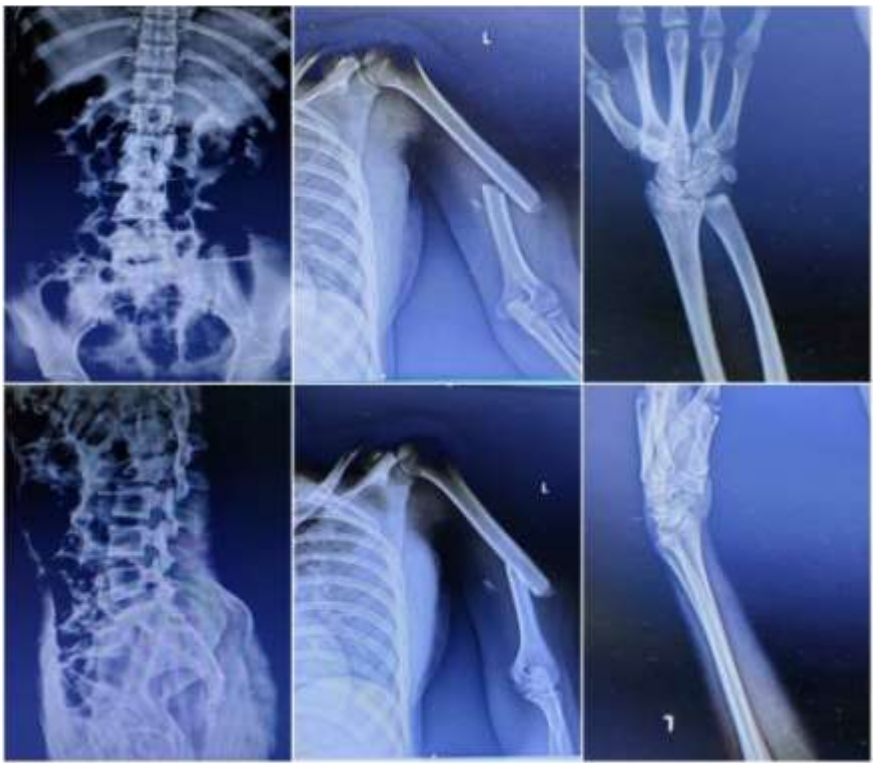

Figure 1:- Preoperative X rays showing L2 compression fracture with left humerus shaft and left distal end radius fractures.

Figure 2:- Postoperative x rats showing posterior lumbar decompression and instrumentation with left humerus interlocking nail and left distal end radius plating.

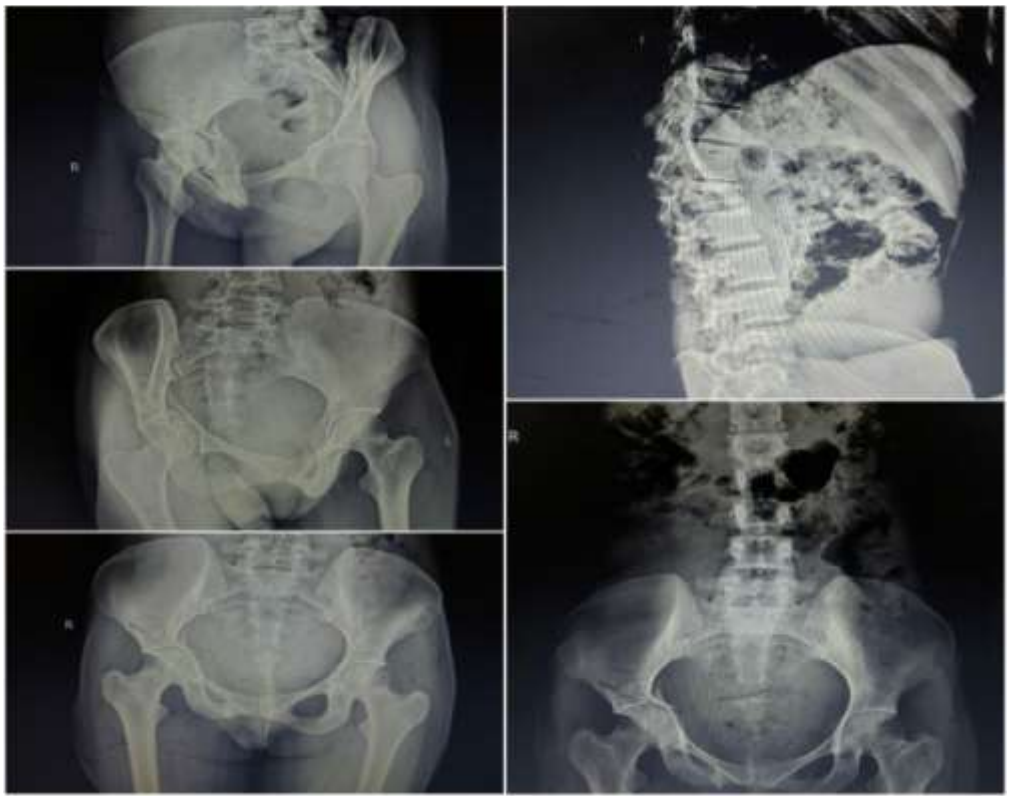

Figure 3:- Preoperative x rays showing L1 compression fracture with right acetabulum fracture.

Figure 4:- Postoperative x rays after posterior lumbar decompression and instrumentation with anterior and posterior acetabular plating.

Figure 5:- Preoperative X rays showing left distal humerus and left distal end radius fractures.

Figure 6:- Preoperative X rays showing fractures of bilateral distal femur, bilateral calcaneum and left distal tibia.

Figure 7:- X rays at 2 months follow-up.

Discussion:-

According to WHO approximately 800000 people die every year due to suicide worldwide. Severe traumatic load inflicted to victims due to falls from height are significant cause of disability and mortality worldwide. It involves mainly young people of 25-34 years age group and more commonly females. Whereas repeat suicide attempts were more common in males. Fall from height could be due to accidental falls or deliberate suicidal attempts. The most common form of trauma are bony injuries leading to fractures and blunt trauma to vital organs like brain, lungs, abdominal and pelvic viscera.The quality and quantity of resultant trauma depends on age and comorbidities of patient, height of fall, surface of impact and part of body which came in contact with ground first.[6]

Most common cause of death in fall from height is head injury with subarachnoid hemorrhage as the most common finding. In upper extremity, distal end radius and hand fractures are common while in lower extremity, calcaneal and pilon fractures are common. This is followed by thoracolumbar vertebral fractures. Patients suffering traumatic injuries involving multiple bony regions with existing or potentially life threatening conditions is referred as polytrauma.[6,7]

During this pandemic, there is critical decision making on hospital administration and individual care providers on how to conserve critical resources like N95 maks, personal protective equipment kits, oxygen beds and ICU vacancies. Half of doctors, nurses and other hospital staffs have been diverted to COVID duties. There are limited general wards and even some operation theatres are converted to COVID ICUs.[2]

Routine elective surgeries should be stopped including the day care surgery wgich lifts the load of patients from general and ICU wards with more availability of hospital personnel for emergency surgeries and COVID duties. This also decreases the risk of cross infections. Considering the limited amount of resources and hospital staff, conservative non surgical management should be thoroughly looked into before posting the patient for surgery.[5]

The emergency surgeon has to take into account all these factors and accordingly plan for further line of management protecting both patients and hospital staff from intrahospital transmission.[2]

As the patient arrives in emergency ward, careful detailed examination of the patient is done, then further assessment of whether the operation can be postponed until patient can be definitively ruled out to be COVID negative. If patient is high risk and hemodynamically unstable with life threatening complications then patient should be taken to operating room after evaluating available resources and taking minimal number of surgeons and staff required for the surgery with adequate protective equipments.[2]

The transfer of patients from casualty to transit or general wards to operating rooms and back should be well planned to prevent cross infections. Many of these operated cases will require ICUs for postoperative monitoring. Hence there has to be proper segregation of COVID and non COVID ICUs to prevent the spread of intra hospital transmission.[2,5]

Suspected or confirmed COVID positive patients must be operated in negative pressure environment to reduce virus dissemination and high frequency air renewal system in positive pressure operation rooms. There should be minimal number of fully protected doctors and staff inside operating rooms with limited number of equipments covered with plastic sheets.[2,8]

The doors of operating rooms must be closed at all times. Allotment of runners outside operating rooms for passing required medications or equipments inside operating room. After the surgery, all the personnel must discard PPE kits and masks properly with proper scrub bath under a shower with change of clean scrubs. The operating room must be cleaned and fumigated.[2,8]

Management of postoperative patients with segregation of COVID and non COVID hospital personnel to avoid cross infections and early discharge of pateints based on their psychosocial needs.[5]

All patients and relatives in the wards should wear face masks and take proper precautions to prevent infection. Routine screening of relatives of patients for COVID 19 is must.. A dedicated waste disposal container should be placed just outside operating room for disposal of all infectious wastes which needs to be sealed and transferred to collection point. All linen must be handled and transferred wearing PPE kits to be immediately cleaned and sterilized.[8]

Conclusion:-

We conclude that this COVID-19 pandemic has taken a great toll both physically and mentally on people in the form of increased mortality and morbidity as shown daily in media, increased unemployment and strict self isolation has further put a strain on people's mind leading to psychiatric disorders and suicidal behaviour. This has increased cases of polytrauma due to suspected suicidal falls. We have adequately treated such patients who came to our institute operatively and with psychiatric support.

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