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Role of Physiotherapy in Post Operative Gastric Perforation

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Abstract

Gastric perforation is a serious medical condition in which a hole develops in the wall of the stomach, leading to leakage of gastric contents into the abdominal cavity. It commonly occurs due to peptic ulcer disease, trauma, prolonged use of non-steroidal anti-inflammatory drugs (NSAIDs), alcohol intake, smoking, stress, or infection with Helicobacter pylori. Gastric perforation is considered a surgical emergency because it can lead to peritonitis, sepsis, respiratory complications, and even death if not treated immediately.

Post-operative gastric perforation patients often experience several complications after surgery such as:

- Severe abdominal pain
- Reduced chest expansion
- Difficulty in breathing
- Generalized weakness
- Reduced mobility
- Risk of pulmonary complications like atelectasis and pneumonia
- Decreased functional independence
- Muscle weakness due to prolonged bed rest

Physiotherapy plays a very important role in the rehabilitation of post-operative gastric perforation patients. Early physiotherapy intervention helps in improving lung expansion, reducing respiratory complications, improving circulation, decreasing pain and stiffness, increasing mobility, and restoring functional independence.

The purpose of this case study is to evaluate the effectiveness of physiotherapy management in improving respiratory function, mobility, pain, muscle strength, and overall functional recovery in a post-operative gastric perforation patient.

Case Description and Assessment

- **Patient Information**
- **Name: xyz**
- **Age:** 40 years
- **Gender:** Male
- **Occupation:** Farmer
- **Marital Status:** Married
- **Date of Admission: 01/1/2026**
- **Date of Surgery:10/01/2026___**
- **Diagnosis:** Post-operative gastric perforation

Chief Complaints

The patient complained of:

- Severe abdominal pain
- Difficulty in deep breathing
- Generalized weakness
- Difficulty in turning in bed
- Difficulty in sitting and walking
- Reduced appetite
- Fatigue during activity
- Reduced chest expansion

History of Present Illness

The patient was apparently normal before the onset of symptoms. He developed sudden severe abdominal pain associated with nausea and vomiting. Pain increased gradually and became generalized over the abdomen. The patient also complained of abdominal distension and fever.

After medical evaluation and investigations, gastric perforation was diagnosed. Emergency surgery was performed to repair the perforation. Following surgery, the patient developed post-operative pain, respiratory discomfort, weakness, and difficulty in mobility.

The patient was referred for physiotherapy management to prevent post-operative complications and improve recovery.

Past Medical History

- History of gastric ulcer
- No history of diabetes mellitus
- No history of hypertension
- No previous major surgery

Personal History

- Appetite: Reduced
- Sleep: Disturbed due to pain
- Bowel and bladder: Normal
- Addiction: Occasional smoking/alcohol (if needed)

Clinical Examination

General Examination

- Patient conscious and oriented
- Build: Moderate
- Pulse rate: 92 beats/min
- Respiratory rate: 24 breaths/min
- Blood pressure: 130/80 mmHg
- Temperature: Mildly elevated

Observation

- Post-operative abdominal incision present
- Guarded posture due to pain
- Reduced chest expansion

- Difficulty during movement
- Shallow breathing pattern observed

Palpation

- Tenderness around abdominal incision
- Increased muscle guarding
- Reduced chest wall mobility

Range of Motion (ROM)

Joint/Movement	Findings
Upper Limb ROM	Within functional limits
Lower Limb ROM	Mildly restricted due to pain
Trunk Movement	Restricted because of abdominal pain

Manual Muscle Testing (MMT)

Muscle Group	Grade
Upper limb muscles	4/5
Lower limb muscles	4/5
Trunk muscles	3/5

Respiratory Assessment

Parameter	Findings
Breathing pattern	Shallow breathing
Chest expansion	Reduced
Cough efficiency	Weak
Sputum	Minimal

Functional Assessment

Activity	Status
Bed mobility	Dependent with assistance
Sitting	Difficult
Standing	Difficult

Walking	Limited
Stair climbing	Unable

Investigations

- X-ray abdomen: Free air under diaphragm
- Ultrasound abdomen: Suggestive of perforation
- Blood investigations: Elevated WBC count
- Post-operative reports reviewed

Physiotherapy Assessment Findings

Problems identified during physiotherapy assessment:

1. Post-operative pain
2. Reduced chest expansion
3. Weak cough effort
4. Risk of pulmonary complications
5. Reduced mobility
6. Muscle weakness
7. Reduced endurance
8. Functional dependency

Physiotherapy Goals

Short-Term Goals

- Reduce pain
- Improve breathing pattern
- Prevent chest complications
- Improve bed mobility
- Improve circulation
- Increase chest expansion

Long-Term Goals

- Improve muscle strength
- Restore functional independence
- Improve endurance
- Improve walking ability
- Return to normal daily activities

Physiotherapy Treatment Protocol

Phase 1: Immediate Post-Operative Phase (Day 1–3)

Breathing Exercises

- Diaphragmatic breathing exercises
- Deep breathing exercises
- Segmental breathing exercises

- Incentive spirometry

Repetitions: 10 repetitions every 2 hours

Positioning

- Proper supported sitting
- Semi-Fowler's position
- Frequent position changes

Airway Clearance Techniques

- Supported coughing
- Huffing technique
- Chest physiotherapy if required

Circulatory Exercises

- Ankle toe movements
- Static quadriceps exercises
- Static gluteal exercises

Early Mobilization

- Bed mobility training
- Sitting at edge of bed
- Sit-to-stand training

Phase 2: Intermediate Rehabilitation Phase (Day 4–7)

Mobility Training

- Assisted walking
- Gait training
- Transfer training

Strengthening Exercises

- Active ROM exercises
- Lower limb strengthening
- Upper limb exercises

Breathing Re-education

- Thoracic expansion exercises
- Controlled breathing exercises

Endurance Training

- Short distance ambulation
- Progressive walking program

Phase 3: Advanced Rehabilitation Phase

Functional Training

- Independent walking
- Stair climbing
- Functional activity training

Home Exercise Program

- Breathing exercises

- Walking program
- Postural correction exercises
- Light strengthening exercises

4. Uniqueness of the Study

This case study highlights the importance of early physiotherapy intervention in a post-operative gastric perforation patient. The study demonstrates how physiotherapy helped in reducing respiratory complications, improving mobility, decreasing pain, and restoring functional independence.

The unique aspect of this case is the combined use of:

- Respiratory physiotherapy
- Early mobilization
- Functional rehabilitation
- Progressive strengthening exercises

The treatment protocol was planned according to the patient's tolerance and recovery stage. Outcome measures were assessed before and after physiotherapy intervention.

Outcome Measures

Outcome Measure	Pre-Treatment	Post-Treatment
Pain (VAS Scale)	8/10	3/10
Chest Expansion	Reduced	Improved
Walking Ability	Dependent	Independent
Bed Mobility	Assisted	Independent
Muscle Strength	3/5–4/5	4/5–5/5
Endurance	Poor	Improved

5. Result

After regular physiotherapy management, the patient showed significant improvement in overall condition.

Improvements Observed

Pain Reduction

The patient's pain reduced significantly from 8/10 to 3/10 on the Visual Analogue Scale.

Respiratory Improvement

- Improved chest expansion
- Improved breathing pattern
- Improved cough efficiency
- No post-operative pulmonary complications observed

Mobility Improvement

- Patient became independent in bed mobility

- Improved sitting and standing balance
- Walking ability improved significantly

Muscle Strength Improvement

Strength of upper limb, lower limb, and trunk muscles improved after strengthening exercises.

Functional Independence

The patient became independent in performing basic daily activities such as walking, sitting, and transfers.

6. Discussion

This case study demonstrates the beneficial effects of physiotherapy in post-operative gastric perforation rehabilitation. Early physiotherapy intervention played an important role in preventing pulmonary complications and improving overall recovery.

Respiratory physiotherapy techniques such as deep breathing exercises, diaphragmatic breathing, and incentive spirometry helped improve lung expansion and oxygenation. Early mobilization reduced the risk of complications associated with prolonged bed rest such as muscle weakness, joint stiffness, and reduced endurance.

Progressive strengthening and functional training improved the patient's independence and confidence. Similar findings have been reported in previous studies where early physiotherapy intervention improved post-operative recovery and reduced hospital stay.

Study Limitations

- Single patient case study
- Limited follow-up duration
- Limited diagnostic resources
- Results cannot be generalized to all patients

Despite limitations, this study provides valuable clinical information regarding the effectiveness of physiotherapy in post-operative gastric perforation patients.

7. Conclusion

This case study concludes that physiotherapy plays a vital role in the rehabilitation of post-operative gastric perforation patients. Early physiotherapy management helped in:

- Reducing pain
- Improving breathing pattern
- Preventing pulmonary complications
- Increasing muscle strength
- Improving mobility and endurance
- Restoring functional independence
- The patient showed remarkable improvement after structured physiotherapy rehabilitation.

Future Scope of the Study

Further studies can be conducted with:

- Larger sample size
- Advanced physiotherapy techniques
- Long-term follow-up
- Comparative studies

- Multidisciplinary rehabilitation approaches

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