



## Case Report

## Impact of Comprehensive Rehabilitation in an 11year old patient undergone exploratory laparotomy in right ovarian mass

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**ABSTRACT**

Childhood ovarian masses are the most common cysts, which can be solid or mixed types. Ovarian masses are usually asymptomatic and diagnosed by ultrasound. Laparotomy diverse range of non-traumatic pathologies, with intestinal obstruction. An 11-year-old female patient reported to the department with complaint of pain in abdomen and back for 8 days. She reported worsening abdominal pain and backache. Fever since 2-History of Typhoid fever 10 days back. Upon physical examination, determined that she was febrile. Pallor present. Lymphadenopathy present bilaterally at submandibular region. Further, her abdomen was examined. Lump seen over lower abdomen. No dilated veins. Mild distention present. On palpation Lump is present which occupies hypogastrium and bilateral iliac region which extends 2-3cm above the umbilicus. Lump is hard to touch. It is having a restricted mobility. Tenderness present over all abdomen more over the lower abdomen. Ascites present. Exercises and bed mobility training had an impact on improving exercise patient's quality of life Functional re-education increased strength and endurance of the muscle as well as it increased pelvic stability which improved her postural stability also. Abdominal strength was achieved by the patient.

**Keywords:** Ovarian Mass, Exploratory laparotomy, Rehabilitation.

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**INTRODUCTION**

Ovarian masses are uncommon lesions in children. The incidence of benign or malignant ovarian masses is reported to be 2.6:100.000 and it constitutes 1-2% of solid tumours seen at these ages. Many cystic, solid, benign or malignant ovarian cysts may develop from the antenatal period. Childhood ovarian masses are the most common cysts and can be of solid or mixed type [1]. These masses aetiologies, clinical presentation, complaints, imaging findings, histopathological diagnoses, and treatments are different in each period. Ovarian masses are usually asymptomatic and diagnosed by incidental ultrasound. They are most often symptomatic when complications exist torsion, haemorrhage or rupture and the most common complaint is abdominal pain [2]. Functional cysts, ovarian torsion, and benign neoplasms are the most common ovarian masses among young adolescents

Typhoid fever is a human-specific disease caused by a bacterium, the enteric serovar Typhi subspecies of *Salmonella enterica* [3]. It is transmitted by the ingestion of infected food or water. *Salmonella Typhi* typically occurs after initial entry via the gastrointestinal route as a febrile disease with bacteraemia, but it may

sometimes cause serious disease in extraintestinal locations. The popular forms of typhoid fever include fever, headache, and gastrointestinal symptoms such as abdominal pain, diarrhoea, constipation, vomiting, and lack of appetite. In rare cases, *Salmonella Typhi* infection can spread directly to other organs such as the brain, bones, joints, and ovaries by hematogenous spread or infection of the intestinal wall and can cause infection in the surrounding structure. *Salmonella Typhi* reproductive organ infection is rare.

Laparotomy has become the name for a heterogeneous group of patients undergoing high-risk abdominal surgery with intestinal obstruction for a variety of non-traumatic pathologies

**Patient information**

An 11-year-old female patient reported to the department with complaint of pain in abdomen and back since 8 days. She reported escalating pain in the abdomen having fever since 2-3 days. She had a history of Typhoid fever 10 days back.

**Physical Examination**

Upon physical examination, determined that she was febrile. Pallor present. Lymphadenopathy present bilaterally at submandibular region. Further, her abdomen was examined. Lump seen over lower

abdomen. No dilated veins. Mild distention present. On palpation Lump is present which occupies hypogastrium and bilateral iliac region which extends 2-3cm above the umbilicus. Lump is hard to touch. It is having a restricted mobility. Tenderness present over all abdomen more over the lower abdomen Ascites present. Pain on VAS is 6.

#### Imaging examinations

An abdominal ultrasound revealed a well-defined heterogeneous lobulated solid looking mass lesion of 10.9×7.9cm approximately seen in the pelvis appearing to arise from the Right Ovary. No cystic or calcification seen within it. It is poorly vascular and shows central hilar type of vascularity. Left Ovary:2.2×1.7cm appear Normal. Moderate ascites seen with Internal Echoes within.

Figure 1: Ultrasonography of Abdomen



Figure 2: Sutures on abdomen of patient undergone exploratory laparotomy



#### CT Findings

The patient also underwent a computed tomography (CT) scan of her abdomen, which revealed a large multilobulated heterogeneous solid cystic lesion with poorly defined margins and thin enhancing septae and solid component in the pelvis extending into the abdomen. Gross ascites and minimal right sided pleural effusion. Sub centimetric to centimetric lymph nodes noted in the mesenteric region.

#### Operative Notes

Patient has undergone D<sub>3</sub> exploratory laparotomy. She is given a lower midline incision which allowed access to pelvic organs the peritoneum should be opened in the uppermost area to avoid injury to the bladder. Suturing was done in midline. As sutures were present on abdomen, she was referred to physiotherapy department to strengthen the abdominal muscles.

#### Therapeutic Intervention

Our short term goal is to improve muscle strength, reduce

pedal oedema, improving posture while sitting, minimise secondary complications such as increased ability to relax, to enhance functional abilities, increase independence and prevent disability [4]. Long term goal was to do not allow symptoms to reoccur, improve quality of life of the patient and make her to return back to her work. To restore muscle strength, endurance and function [5].

#### Phase 1 (1-6 days)

During the first week physiotherapy will concentrate on alleviating the symptoms from surgery and preparing the patient for speedy recovery and lessen the hospital stay. Our primary goal is to minimize the pain of patient. Pain can be controlled by using modalities. Cryotherapy was given to reduce swelling which was appeared postoperatively. Postural advice was given to strengthen lungs and minimise the risk of respiratory complications. Breathing exercises were given to improve the vital capacity of the patient. Proper wound care was given to prevent infection and other complications. Wound care will make the healing process easier. Positioning was given to avoid the development of pressure sores. As the patient is properly positioned it plays a huge role in the part of recovery [6].

#### Phase 2 (6-12 days)

The second week physiotherapy session aims on early mobilisation of the patient so that she can be able to do transfer activities. Initially bed mobility exercises were started. Straight leg raising to improve the strength, 10 repetitions were given for each leg. Pelvic strengthening exercises were in that pelvic bridging was started as it is an effective measure to strengthen the pelvic and abdominal muscles. Advice was given on the safest way to stand properly and improving the mobility indoors and outdoors. The patient was instructed on moving and lifting techniques to minimize the risk of low back pain.

Functional re-education was also taught to the patient in that rolling, supine to side lying and side lying to prone lying was taught primarily. Then prone to side lying, side lying to supine was started gradually. It increased the pelvic stability which can improve postural stability.

#### Phase 3 (12-18 days)

The physiotherapy program will now be modified for more practical tasks in the third week and to focus towards returning to full fitness levels. Our aim is to progress all the previous exercise plan and increase its duration. After the removal of suture ambulation was started. Ambulation protocols have become an essential component in postoperative cases. We instructed the patient to sit up out of bed for 6 to 8 hours and walk at least 6m up to five times in a day. As the days passed more walking was initiated by the patient as walking is the best way to prevent blood clots.

We advised the patient on how to maintain a good posture to reduce additional stress on the abdominal and operated area. Breathing exercises were continued which helped the patient to prevent

respiratory complications. Essential instruction was given to the patient regarding weight lifting as that she can lift light loads only after six weeks. Static back exercises were given to increase back strength. As her abdominal strength increased, she was able to perform all the basic activities of daily living which gradually improved her health-related quality of life.

## RESULTS

The exercises and bed mobility training improved the patient's quality of life. Functional re-education increased strength and endurance of the muscle as well as it increased pelvic stability which improved her postural stability also. Abdominal strength was achieved by the patient.

Physiotherapy treatment protocol was given for about a month, patient was again reassessed and then prognosis was made. Now she is able to do all the activities of daily living and she has become independent to perform her own work. She can also lift light loads.

## Limitation

Due to hospital stay her treatment protocol was not increased as during hospital stay there are some limitations while rehabilitation. As she was a child, we could not initiate more activities.

## Home Program

Patient was told to continue exercise programme and ergonomic advice, to maintain correct posture during rest and work. Avoid postural attitudes that will induce excessive stress. Advice was given regarding weight lifting. She was also told to shift towards instrumental activities of daily living gradually.

## DISCUSSION

The possible risk of capsular rupture of an unforeseen ovarian cancer is the key concern about ovarian mass management [7]. In some cases, surgical therapies and minimally invasive procedures may be performed to allow a more rapid recovery. The use of these therapies in young people, however, lacks supporting evidence and little is known about their applicability in this group. Due to the substantial risks associated with long-term care, medical management is only used for short-term therapy.

In addition to the protection and physical well-being of the patient, fertility preservation is almost always a major priority. Physicians should give pre- and post-procedure advice on potential fertility, recurrence after surgery, family planning options, and the value of early and regular prenatal visits while pregnant, as well as early completion of family size. When approaching a young woman with a pelvic mass, a high degree of suspicion is essential. Pelvic examination and ultrasonography are essential to determine the diagnosis.

Due to its high sensitivity and precision in injury detection, localization and grading, CT is considered as the definitive technique. Surgical solutions should be discussed during preoperative work up with any potential signs of sepsis and abdominal pain. Exploratory

laparotomy should be discussed as a potential intervention. Conversion to an exploratory laparotomy seems inevitable when concerns of complications arise before surgery to reduce morbidity [8].

There are only a few trials that support the usefulness of prophylactic respiratory physiotherapy. The routine use of respiratory physiotherapy after abdominal surgery does not seem to be justified. After open abdominal surgery, postoperative physiotherapy has been shown to decrease the occurrence of postoperative pulmonary complications [9]. This research aimed to evaluate if the addition of deep breathing exercises and secretion clearing techniques to a structured early mobilization physiotherapist-directed program enhanced clinical results in patients undergoing abdominal surgery. Physiotherapists suggested that the preferred post-operative care within the UAS patient population was early mobilisation away from the bedside. Despite recent literature, many continue to conduct regular respiratory procedures, indicating that it does not offer any added benefit to preventing PPCs. The current option of intervention represents the guidelines, but recent work has called this into question and further research needs to be done to decide if these recommendations are the most successful in reducing PPCs. Continued research is required to encourage information translation to ensure that physiotherapists mobilize patients one day after UAS [10]. Future studies should also concentrate on the identification of challenges, the methods used to resolve constraints, and the creation of a reliable and validated screening method to ensure adequate prioritization and distribution of physiotherapy services within the UAS patient population [11].

## CONCLUSION

As she is a child an early operative procedure was done after diagnosing. Early surgery will help for better rehabilitative process and she will be able to achieve all the milestones in adulthood. This surgery may not bother in her instrumental activities of daily living in later life. Healing process is fast and it will achieve a higher recovery rate.

## List of abbreviation

UAS-Upper abdominal surgery

PPCs-Post operative pulmonary complications

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