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CASE REPORT: ACUTE TENSION PNEUMOPERITONEUM

Surgery

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ABSTRACT

Tension Pneumoperitoneum Is Described As An Extreme Form Of Pneumoperitoneum In Which A Large Volume Of Free Intraperitoneal Air Attains A High Pressure , Requiring Urgent Intervention[1]. Various Iatrogenic Procedures Like Endoscopy Are Responsible For This Complication. It Is Usually Caused By Intraabdominal Hollow Visceral Perforation During Endoscopy, Bariatic Surgery, Blunt Abdominal Trauma Or Barotrauma During Mechanical Ventilation.[2] We Herein Report A Rare Case Of Tension Pneumoperitoneum Resulting From Accumulation Of Compressive Gases In The Abdomen Of A Labourer Working In A Rubber Mat Factory Whose Colleague Introduced The Gas Per Rectally.

The Diagnosis Is With Clinical Accumen, And Prompt Diagnosis Is Necessary To Provide A Timely Life Saving Intervention. It Should Be Considered In Any Patient Presenting With Signs Of Circulatory Shock And A Distended, Tense Abdomen.

KEYWORDS

Pneumoperitoneum, Respiratory Distress, Decompression, Laporotomy

CASE DESCRIPTION

A 40 Year Old Man Presented To The Emergency Room With The Chief Complaint Of Respiratory Distress. The Patient Was Working In A Rubber Mat Factory And Got Introduced Compressive Gases Via A Pump (that They Use In Making Of Rubber Tyres And Mats) Per Rectally By A Co Labourer . A Few Minutes Later, He Developed Dyspnea And A Feeling Of Distended Abdomen, Which Progessively Worsened Over The Next Few Minutes. 20-25 Minutes Later, He Came To The Emergency With Chief Complaints Of Respiratory Distress, Pain Abdomen And Obstipation.

The Vital Signs Were As Follows: Blood Pressure- 80/40mmhg ; Pulse- 110/min ; Respiratory Rate-10/min ; Oxygen Saturation- 90% In Room Air ; And Temperature- 36 Degrees C.

On Examination, Breath Sounds Were Dimished Over The Lower Half Of The Right Side Of The Chest. On Inspection, Abdomen Was Distended. On Palpation, Abdomen Was Tense And Rigid. Bowel Sounds In The Four Quadrants Were Absent. Chest Xray, Abdominal X Rays And Ct Abdomen Was Ordered Urgently.

The X Ray Studies Showed Large Amount Of Intra Peritoneal Air With Viscus Perforation And Right Sided Diaphragmatic Rupture. The Diagnosis Of Tension Peritoneum Was Confimed By The Radiological Interventions. Three Signs That Supported The Diagnosis; Saddle Sign, Rigler Sign And Triangle Sign Were Appreciable. Two Large Bore Iv Lines Were Secured And Conservative Emergency Treatment Was Started. E

As The Patient's Condition Was Deteriorating Despite Fluid Resuscitation, Needle Decompression Was Done By Inserting A 16 Gauge Angiocatheter 2 Cm Below The Umbilicus In The Midline. As Soon As Decompression Was Done, A Gush Of Air Was Released And The Patient's Health Started To Get Hemodyamically Stable Thereafter. The Patient Was Then Shifted To The Operating Room Where Emergent Laporotomy Was Done Repairing The Perforation.

DISCUSSION

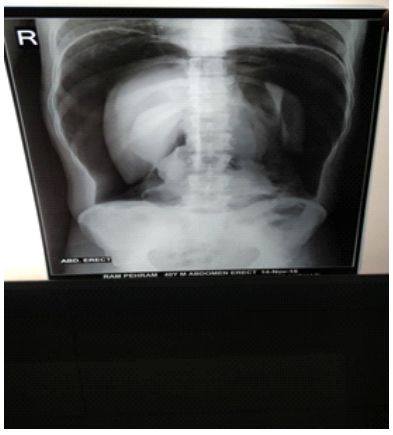
As Soon As The Diagnosis Of Tension Pneumoperitoneum Is Made, Immediate Therapy Should Follow. In Hemodynamically Unsatble Patients, High Clinical Suspicion Warrants Immediate Percutaneous Needle Decompression, As In Tension Pneumothorax(3). A 16 Guage Venous Catheter Is Ideal As It Is Long And Thick Enough To Reach The Peritoneal Cavity And It Allows Required Amount Out Of Air To Be Drained Out. The Site Of Insertion Can Be Same For Abdominal Paracentesis. It Is Preferable To Advance The Catheter Over The Needle In Order To Minimize The Risk Of Abdominal Organ Injury.

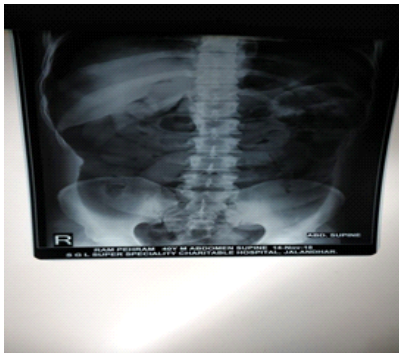
Tension Peumoperitoneum Is A Rare Form Of Abdominal Compartment Syndrome That Results From Entraptment Of Lage Amount Of Air, Which Thereby Increases The Intra-abdominal Pressure To Compress The Vital Organs, Inferior Vena Cava And Hence Decrease In Venous Return To The Heart. It Can Also Cause Splinting Of Diapragm Or It's Rupture As In This Case, Resulting In Compromising The Ventilation And Perfusion. Tension Peritoneum Permits Air Inside The Peritoneum To Build Such A Pressure Inside The Cavity, While An Overlyiing Portion Of Omentum Acts As A One Way Valve Allowing Gas To Attain A High Pressure(3).

Tension Pneumoperitoneum Can Be Associated With Tension Pneumothorax , Either Due To An Associated Diaghragmatic Eventration Or Air Entry Through Perivascular Connective Tissue (3). Some Unusal Complications Are Portal Vein Thrombosis(4) And Suprior Mesenteric Vein Thrombosis(5).

CONCLUSION

A High Index Of Suspicion Is Necessary For Timely Diagnosis Of Tension Hemoperitoneum Which Is A Potentially Life Threatening Condition. X Rays And Ct Sacans Are Confirmative And Gold Standard For The Diagnosis. The Novel Idea Of Urgent Needle Decompression Improves The Cardiorespiratory Fuction Of The Patient And Hence It Bridged The Time Gap For The Emergent Laporotomy. Thereby It Is A Simple , Innovative And Effective And Life Saving Surgical Intervention For The Patients Who Are Poor Surgical Candidates And Hemodynamically Unstable Patients. It Should Be Considered In Any Patient Presenting With Signs Of Circulatory Shock And A Distended, Tense Abdomen.





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