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# "Large Gastro-Duodenal Lesions of Varyingaetiology, With Without Pancreatitis & Other Lesions, A Treatment Modality."

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**ABSTRACT**

***Objective:*** *Last About More Than (2) Decades, OverAll Result Outcome, In Gastro-Duodenal Repairs Of Varying Extents, Needed For Different Aetio-Pathogenesis & Co-Existing Lesions, Witnessed Several Supportive Factors, Including Medications Availability Controlling Gasto-Duodenal Pancreatic Secretions, Better Suture Materials, Beside Advent Of Efficient Anti-Microbials Including Parenteral Anaerobs Etc.*
*HowEver, The Various Complications Associated With Gastro-Duodenal Repairs,Especially In*
*Gastro-Duodenal Trauma, Large Peptic Perforations,(+-)Malignancy,Pancreatitis, Sepsis & Other Associated Lesions, Revealed During Delayed Exploratory Laprotomies, Reaffirms, The Need Of, 'A Modified Technique For Aspiration Of GIT Secretions', Better Than Other 'Diversion' Or 'Drainage' Procedures, Combined Or Alone With Comparative Good Results, In Compromised Patients Or OtherWise.*
***Method:*** *Practiced In Several Patients(About >200 Exploratory Laprotomies Of Varying Extent,& Indications),The Described Method Of Aspiration Of Gastro-Intestinal Secretions, In Gastro-Duodenal Repairs, A Modified Technique,Comprises RT Suction, At Two Different Levels Of Gastro Intestinal Tract, Using Two Ryle's Tubes, First In The Stomach, R.T (A), Conventionally Aspirating Gastric Secretions,And Second, Negotiated Just Distal To Gastro-Duodenal Repair, R.T (B), Aspirating Pancreatic And Biliary Secretions, Along With SuperFluous Gastric Secretions,Preventing Leakage From Site Of Repair During Phase Of Healing And Thus Facilitating Healing Process,Minimizing Post-Operative Flatuence,Excessive Prolonged RT Aspirates, Leaks Etc,As Palliative(+-)Curetive Procedure.Careful Use Of Octreotride (Somatostatin Analogues) Definitely Enhance,OverAll Surgical Result Outcome In Associated Pancreatitis Or Other Wise, By Reducing, G.I.T. Secretions, & A Definitive Supportive Role In Gastro-Duodenal,Biliary, Pancreatic Leaks, Fistulae Etc.*
***Results:*** *The Simple, Safely Performed Double RTs Intubation, &Secretions Aspiration,Proximal & Distal To Repair, Especially In Compromised Patients With (+-) Associated Lesions & Jeopardized Fitness For Extensive Surgical Procedures, Good Comparative Results Achieved,*
*While In Combination With Other Procedural Modalities, The Technique Reported Definite Positive Results, In Regards To OverAll Morbidity & Mortality, Avoiding Complications Etc.*
***Conclusion:*** *Thus As A No Harm Done,Simple, Safe Procedure, With Scientific & Statistical Logistics Evident Of Definitive Help For Better Results,Especially In Compromised Situations, The Discussed Methodology Of GIT Secretions Aspiration, Using Two Ryles Tubes, Is An Acceptable Treatment Modality.*

***Keywords:*** *Gastro-Duodenal Repairs APD Trauma1; Associated Lesions Pancreatitis, Malignancy Sepsis2;,Aspiration Of GIT Secretions3;DiversionExclusionMethodsTriple Tube Method,Duodenostomy4; Vagotomies5; Somatostatin Analogues6; Bariatric Surgery7;*

## I. INTRODUCTION

Clinical Practice In Last About (2) Decades, Witnessed Drastic Changes In The Treatment Modalities Of Gastro-Duodenal Pancreatic Pathologies, Especially Acid Peptic Disease Syndrome, Due To Availabilities Of Increasingly Effective Medications,Beside Dietary,Habits Regulation,From Just Antacids To Cimetidine, Ranitidine, Famotidine, Omeprazole, EsOmprazole, PantoPrazole To Rabeprazole OnWards Etc., Use Of Somatostatin Analogues,Better Bleeding Control Medications And Available Sophisticated Endoscopic Procedures (ERCP, MRCP, Stenting & Others) For Biliary Dyspepsias, Pancreatitis Etc,[1][2][3].

The Overall Result Outcome Of Gastroduodenal Repairs For Different Indications Varying From Small To Large, Solitary To Multiple Peptic Perforation Repairs Pyloric Exclusion Procedures Like Gastrojejunostomies,Other Drainage Procedures, &Various Gastrectomies Etc.,ForAcid Peptic Disease, Malignancy Or Traumatic Aetiologies. Largely Depends Upon Meticulous Aspiration Of GIT Secretions (Gastric, Duodenal, Pancreatic & Biliary Origin)Around Repairs, Supported By Decreasing Copious Outflow With Proton Pump Inhibitors, $H_2$ Receptor Antagonists & Or Cautious Administration Of Recently Available

Somatostatin Analogues, Proper Surgical Technique And Appliance Material Available, Beside Underlying & Or Other Associated Disease Process.

The Discussed Methodology Of GIT Secretions Aspirations Using (2) Ryles Tubes, At Stomach Level (Gastric Secretions) & Beyond Repair Draining Duodenal Biliary & Pancreatic Secretions, Alone & Or In Combination With Other 'Diversion' Or 'Drainage' Procedures, Better Than 'Pyloric Exclusion, Gastrojejunostomy Etc., Avoiding Hazards Of `T-Tube Insertion', 'Triple Tube Method' And 'Duodenostomy', Combined Or Alone,With Definitely Better Comparative Results,[7].

HowEver Role In Bariatrics, Obesity Surgeries, 'Gastric By Pass' Procedures, ? Flatuence, Persistent RT Aspirations, Gastro-Duodenal Pancreatic Secretions Hormonal Axis Influence Etc., Is In Process.

## II. MATERIALS AND METHODS

The Study Includes Large Number(About >200 Exploratory Laprotomies),For Various Indications(Emergency, Elective), Peptic Perforation Peritonitis Cases, Duodenal Ulcers Of About 1½ To ≥4 Cms Sizes(Conventionally Compared With 25 Paise,50 Paise Indian Coin Sizes), In Variable Stages Of Pathogenicity, Comparatively Less Common Large Gastric Perforations & Rarely Posterior Penetrating Gastric & Or Multiple Perforations.

Aetio-Pathogenesis Attributed To Un-Treated & Or, Not Properly Treated 'Acid Peptic Disease' With Or Without Precipitating Factors, In Majority Of Cases, While Malignant Process & Less Commonly Trauma, Being Causative Factors, In Considerable Number Of Cases, With Associated Pancreatitis & Or Other Pathologies, Gastric,Pyloric By Pass Surgeries & Different Anastomosis Etc.

GIT Secretions Aspiration Using Two Ryles Tubes, Proximal & Distal To Repair,Alone Only,Or In Combination With Various Described Conventional Procedural Steps, Like,'The Cattell-Braasch Maneuver': Adequate Exposure For Retro-Peritoneal Structures,'The Kocher Manovure' :Adequate Exposures & Mobilization Duodenum,'Triple Tube Method', Pyloric Exclusion Procedures E.g Gasto-Jejunostomies,Duodenostomies Etc., Were Included In The Study.

Some **Relevant 'Case Reports'**,Have Been Described.

**"CASE REPORT (I)"**

Comprises Management Of A Young Boy With Gastro-Duodenal Trauma, Associated
With Pancreatic And Genitourinary System Injury, In 1990s.

A Boy, In Early Second Decade, Sustained Blunt Injury Abdomen Following Road Traffic Accident, First Visit, Next Day Of Admission, Clinical Diagnosis Was Confirmed, By Radiology Abdomen, Revealing Visceral Perforation.

Conservative Management Started Immediately, Comprising Ryles', Tube Aspiration, I.V. Fluids, Antibiotics, I/V Metronidazole, Injectible Analgesics, Input Output Charting, Regular Watch Vials And Arrangement Of Blood.

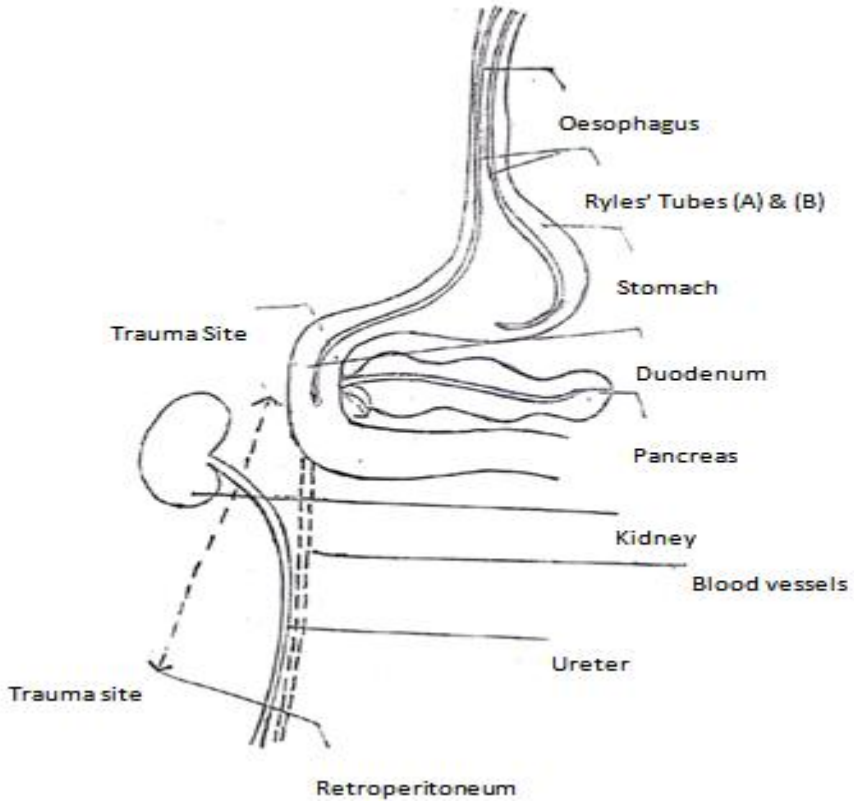
Exploratory Laparotomy Performed After 48 Hours, Revealed Large Defect (About >5-6 Cms) Gastroduodenal Junction Extending Up To Second Part Of Duodenum.

Lesser Sac With Pancreas Were Found To Be Intact.

Large Defect In Retroperitoneum, Exposing Kidney, Ureter And Vessels, WithOut Evident Injury.As,Preoperatively No Other, Apparent Injury Detection Was Possible, Due To Lack Of Preoperative Contrast Radiology And, Or, Other Non Invasive Diagnostic Facilities.

Another Ryles Tube (B) Was Negotiated, Beyond Perforation, In The II And III Part Of Duodenum, And Both Ryles Tube, Secured At External Nares With Silk Sutures.

Gastro – Duodenal Perforation Was Closed With 3-0 Silk R.B., Using Live Omental Patch, With Fixation Sutures For Gravitational / Positional Support.Retroperitoneal Defect, Approximated With Meticulous, Distantly Placed, Interrupted, CCG 2-0 R.B Sutures.Abdomen Closed In
Layers, With Peritoneal Drains & Stay Sutures.




**"Diagrammatic Illustration (1)"**

Postoperative Period: Massive Haematuria, To Start With Regressed Gradually, As Confirmed Clinically And Microscopic Urine Examination And Maintained Renal Function Tests, Within 2 To 3 Weeks Confirming Gradual Settlement Of Genito-Urinary Injury.

Mild Injury To Pancreas, Settled Gradually As Evident By Repeated Serum Amylase And Peritoneal Fluid Amylase Level Reports. Within One Month, Serum Amylase From 3.00 IU/L To 1.8 IU/L (1,000 Somogyi Unit), Peritoneal Fluid Amylase Level From >5,000 IU/L To Almost Nil (Normal Ranges).

Stay Sutures Followed By Skin Sutures Removed Gradually And Drainage Taken Out.

Regular Dressings With Application Of Available Skin – Mucosal Barriers Performed, Soakage Reduced Gradually With Complete Healing.Regular Bowels & Adequate Urine Output Recorded.Diet Comprised Fluids To Semi – Solids To Solids Gradually, Replacing Parenteral Nutrition.

Ryle's Tubes Taken Out, First, That Of Stomach (A), Followed BySecond(B) Ryle's Tube.

Planned Barium Studies Upper G.I.T. And I.V.P. To Delineate Gastroduodenal Repair And Evidence Of Genito-Urinary Injury.

**"CASE REPORT (II)"**

A Male Patient, In Fifties, Admitted To Casualty Department,About 2005, With Complaints Of Diffuse Pain Abdomen: 20 Days, Absolute / Relative Constipation: 10 Days, Being Treated With No Records Available. Except Moderate Smoking And L.I.H. Surgery, About 2 Years Before, No Significant Associated History, Present.

On Examination, Beside Toxic Looks And Deteriorating Vitals (B.P.: 100 / 60 MmHg), Had Tense, Distended, Diffusely Tender Abdomen, Bowel Sounds Feebly Present. External Genitalia: W.N.L., P/R Exam.: Rectum Ballooning (+).

X-Ray Abdomen KUB (Erect) With Both Domes Revealed Gas Under Diaphragm, With A R.O.S. About 1cm In The Rt. Psoas Region, About Lumbar (4) Level.

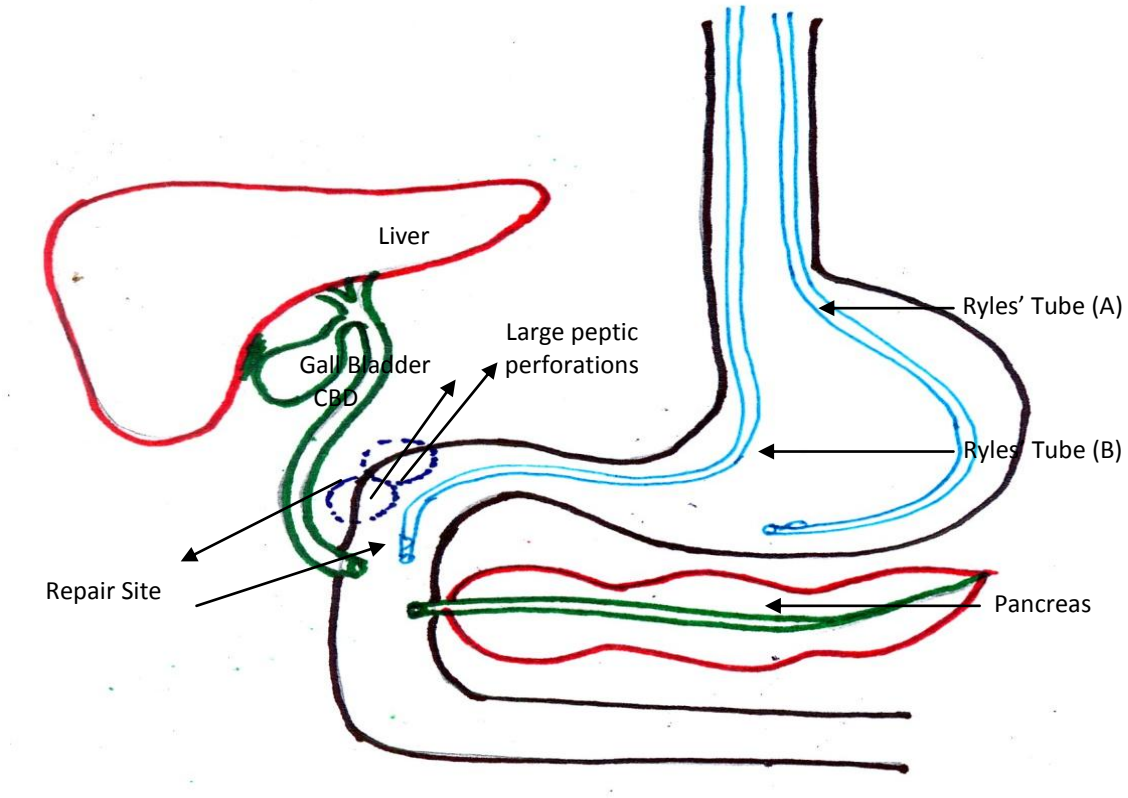
Laboratory Investigations, Indicated Severe Inflammatory Process With Uraemia (Blood Urea: 106 Mgm%).

Exploratory Laparotomy With High Risk Consent, Performed Under General Anaesthesia; More Than >5 Litres Bilious Fluid, ? Purulent, Drained And Thorough Normal Saline + Betadine Peritoneal Lavage, Done.

Severe Inflammatory And Pancreatitis Changes, Present With Adhesions In Sub-Hepatic And Gastro-Duodenal, Transverse Colon Region.

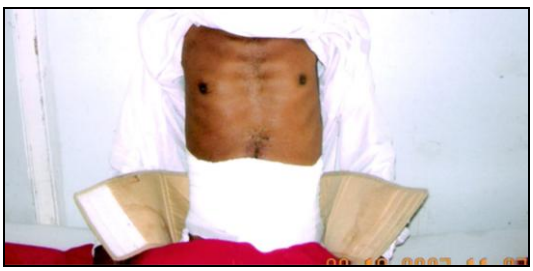
About >4cms Diameter Size Perforation Present Adjacent, To Gastro – Duodenal Junction, Extending To II Part Duodenum.

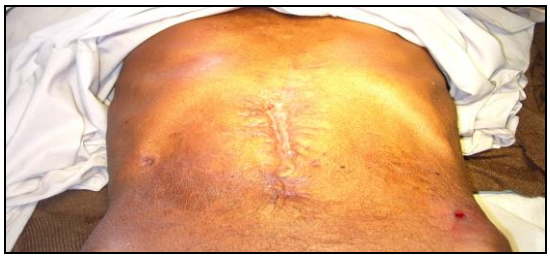
Another Ryles Tube Was Negotiated, Beyond Perforation, In The II And III Part Of Duodenum, And Both Ryles Tube, Secured At External Nares With Silk Sutures.
Perforation Was Closed With 2-0/3-0 Silk R.B., Using Live Omental Patch, With Fixation Sutures For Gravitational / Positional Support.
Subhepatic And Pelvic Drainage, Inserted, Abdomen Closure In Layers, Using With Vicryl 1-0 R.B., Silk 1-0 Cutting, With Betadine Wound Lavage.




**"Diagrammatic Illustration (2)"**

Post Operative Period, Was Uneventful, With Gradual Recovery. About (1.5) Litres Per Day Gradually Decreasing, Ryles Tube Aspiration, Was Monitored, Till 5-7th Post Operative Day, About Half Of Total R.T.A. Aspiration, From Ryles Tube (B), Present Beyond Repair.
Uraemia, Restricting The Use Of Aminoglycosides (Most Important Antibiotic For Working O.T. Bacterial Flora) Gradually Reverted Back To Normal Range Within A Week.
Patient Passed Adequate Amount Of Urine With And Without Catheter And Passed Motion About 4th Postoperative Day With Satisfactory Flatus Passage, Subsequently. Overall Gradual Improvement Of Clinical Status, Was Maintained.



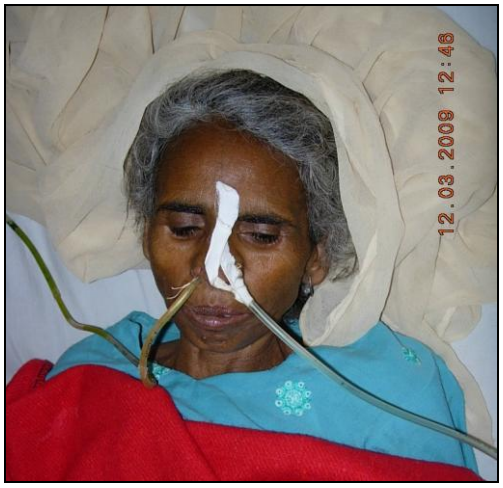


**"Photograph 1, 2"**

Ryles Tube; (A) & (B), Were Removed, About 10-12 Days (A) First, Followed By (B), With Gradual Change From Fluids, Semi – Solids To Solid Diet, Compensating Parenteral Nutrition, Gradually Withdrawn.Ulcer Edge Biopsy Revealed Malignancy.Serum Amylase And L.D.H. Estimation Facilities Non Availability, And Non – Compliance For Octreotide Therapy, Prolonged Ambulatory Period.

Patient Discharged, In Healthy, Good General Condition, With Normal Bowels, Managing Sub–Cutaneous Wound Infection By Anti Microbials With Pantoprazole / Rabeperazole, Nutritional Supplements Administration And Surgical Toilet, In About A Month Time.

**"CASE REPORT (III)"**

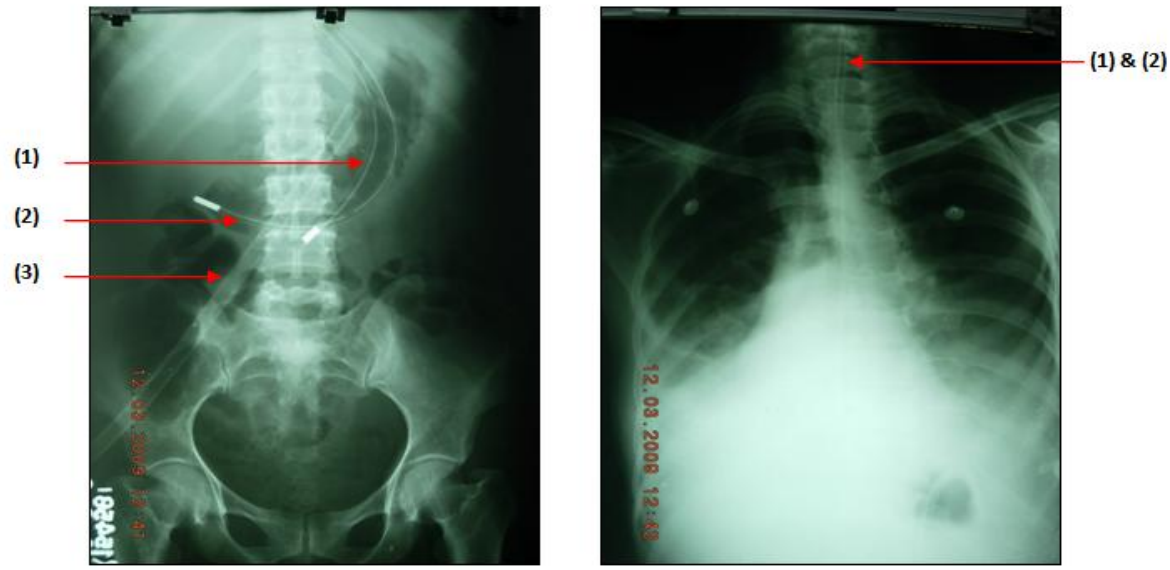



**"Photograph 3,4"**

In2005,LadyIn5th Decade,Undergone Exploratory Laparotomy,2nd PartDuodenum,About(4)Cms Perforation, Aseptic Lavage,Perf.Closure,Peritoneal Drainage ,Done.
(2)Ryle's Tubes With External Nares Fixation In Place,(Photograph3,4).
Discharged About (12) Days Postoperative Period, After Stitch Removal,
Completely Healthy Wound, No Complaints.

**"MODIFIED RYLES' INTUBATION"**

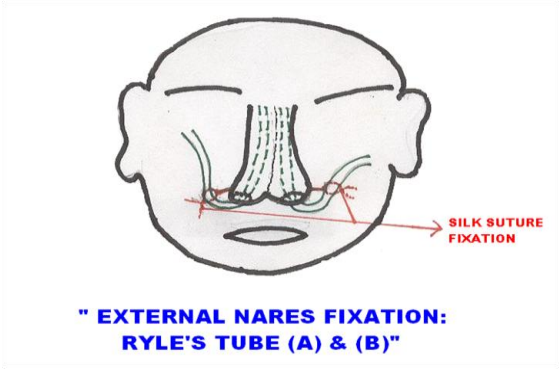
In Additional To Classical RT In The Stomach,Second Ryles' Tube Negotiated Distal To Repair Diagram(2,4),&Revealing X-Rays1,2.Can Be Secured, By Fixation With Non – Absorbable Suture At External Nares,And Or Lightly Just Distal To Site Of Repair By Plain Catgut Depending Upon Severity Of Injury And Or Extent Of Repair. Advised To Be Taken Out With Caution, After 2 To 3 Weeks (Time Of Dissolution Of Plain Catgut) If Secured Just Distal To Defect With Plain Catgut.
.External Nares Fixation Being Safe, Easily Performed, & Avoids Hazards At,The Time Of With Drawl.Diagram(3).**Careful, Aspiration 2 Hourly, With Continuous Drainage, Is The Key To Success.**



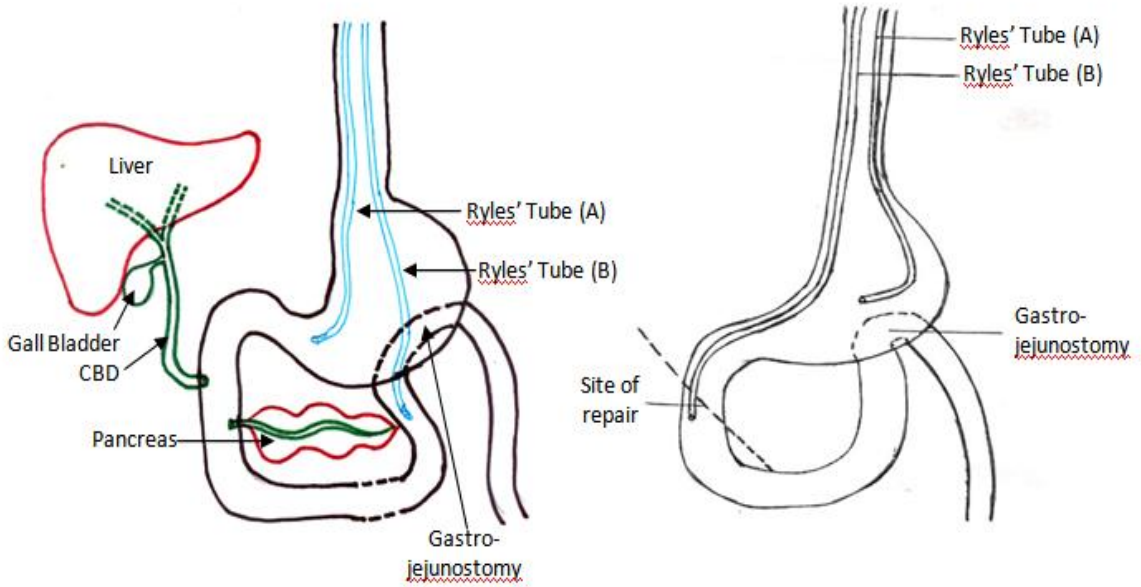

**"X-Ray Abdomen & Chest Revealing (2) Ryles' Tubes In Place"**

**(1)Ryles' Tube (A) In Stomach**
**(2)Ryles' Tube (B) In Duodenum Beyond Repair**
**(3)Subhepatic Peritoneal Drainage**

**"X-Rays 1, 2"**




**"DIAGRAMMATIC ILLUSTRATION (3)"**




**"DIAGRAMMATIC ILLUSTRATIONS 4"**

## III. DISCUSSION

Besides Various **Result Outcome Parameters**, Patient's OverAll General Condition, Vitals, Anaemia, Hypoproteinemia, Hydration, Especially Delayed Biliary Peritonitis Cases Of Hot Temperate Regions In Summers, Needing About 4-6 Litres IV Fluids In About 12 Hours To Manage, Anuria/Oliguria, Altered Renal Function Tests Etc., Severity Of Toxicaemia/Septicemia, Associated Pancreatitis,Malignancy & Or Other Pathologies, Size Of Perforation With Viability Of Adjoining Tissue, Thorough Antiseptic Peritoneal Lavage, Proper Sutures & Surgical Materials, Appropriate Grahm's Omental Patch (Live Or Otherwise) With Additional Fixation / Adherence Sutures For Gravitational / Positional Support, Proper Supportive Postoperative Management Following Cautious Pre And Per Operative Management Aimed At Minimizing Surgical & Anaesthesia Trauma.Adequate Meticulous Aspiration Of GIT Secretions Around The Repair Remains One Of The Most Important Result Outcome Determinant In Gastroduodenal Repairs,[8][9][10],Table.

Gradual Availability Of Increasingly Effective Medications Reducing(+ -)Modulating Gastro-Duodenal Pancreatic Secretions(AntAcids, Proton Pump Inhibitors, H2 Receptor Blockers Etc., Anti-Flatuent Drugs E.g, Methyl Poly-Siloxicaine, DomPeridome Etc., Along With Upper GIT Motility Regulators E.g CisaPride, MozaPride, ItoPride,Cintapride Etc., In Collaboration With AntiMicrobial AnAerobs(Metronidazole,Tinidazole, Ornidazole,NitaoxanideEtc.),Oral&IVPreparations,LedToSignificantReductionInPepticUlcerDisease,InspiteOfEmergence Of Clinical Entites Like 'HelicoBactorPylori'Etc,ReducedConventional Surgeries:Vagotomies Etc.,

Beside Enhancing Result Out Come In Various Gastro-Duodenal Repair Surgeries,For Different Needs & Extents,[14][21].

From Non Operative Management Of Peneterating Abdominal Injuries Upto 19th Century,With Reported Substantial Mortality Rates For Gasto-Duodenal Injuries During World War I, To About 55.9% During World War II, Decreased Considerably During 20th Century Due To Available Better Surgery Materials, Effective Anti-Biotics, Nutritional Preparations & Advancement In Critical Care Etc,[4][5][6].

Timely Appropriate Intervention Renderd Possible Due To CT/ CECT Scans, Diagnostic Peritoneal Lavage(DPL), Focussed Assessment Of Sonography In Trauma(FAST) & Other Diagnostic Laboratory Investigations Etc,[11][12].

**"Table" "Determinants Of Duodenal Injury Severity"**

| Determinants of injury severity | Mild | Severe |
|---|---|---|
| **Agent** | **Stab** | **Blunt or Missile** |
| **Size** | **<75% Wall** | **>75% wall** |
| **Duodenal site** | **3,4** | **1,2** |
| **Injury – Repair Intervals (hours)** | **<24** | **>24** |
| **Adjacent injury** | **No CBD** | **CBD** |
| **Outcome** | | |
| **Mortality (%)** | **6%** | **16%** |
| **Duodenal morbidity (%)** | **6%** | **14%** |

**CBD; Common Bile Duct.**

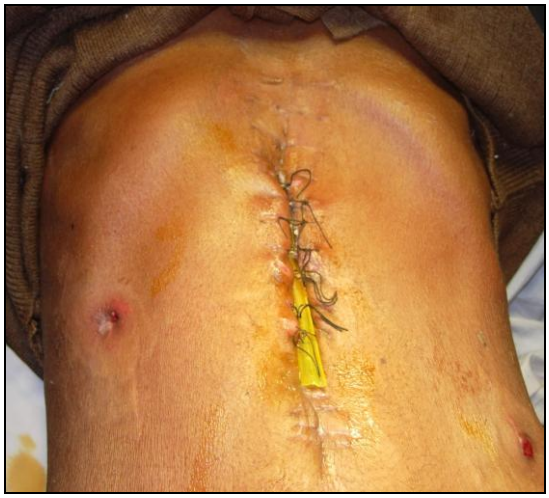
Adapted from Synder, W.H. III, Weigelt, J.A., Watkins, W.L., and Bietz, D.S., : The surgical management of duodenal trauma precepts based on a review of 247 cases. Arch. Surg., 115: 422. 1980, Copy right 1980, American Medical Association.**Differential Statistical Datas Reports Are Available,In Regards To,**

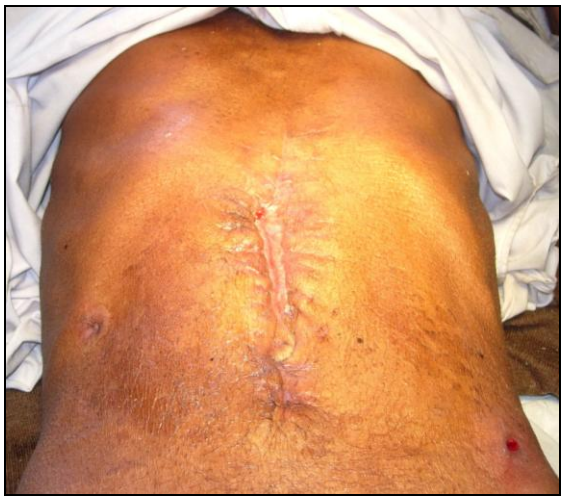
**Injury Mechanism Mode: Penetrating, Blunt Trauma Of Various Causative Origin, Different Segments (4) Of Duodenum Affected, With / WithOut Stomach, Pancreas, Hepato-Biliary Involvements Etc.**

## SOMATOSTATIN ANALOGUES (E.G. OCTREOTIDE) THERAPY

Needing Carefully Monitored Administration, Enhance Result Outcome By Reducing Secretions, Otherwise. Trial Study Conducted In A Group Of Patients Revealed Considerable Lowering Of Serum Amylase, Serum Lipase Levels With Definite Symptomatic Relief,

After Cautious Monitored Administration Of Octreotide (Actide).Good Results Achievements Have Been Been SucessFully Demonstrated In Several Cases Of Post-Operative Gastro-Duodenal Biliary Leaks, By Concomitant Use Of Available SomatoStatin Analogues,[15].





**"Photographs 5,6"**

**Role Of Various "Vagotomies", Simultaneous, Or Otherwise,** Depending Upon Patient's Surgical / Anaesthesia Status, Especially In Recurrence Cases, Resistant To Medication & Other Supportive Therapies Compliance, Is Worth Consideration In Resistant Cases After Strict Dietary Regulations And OtherWise RiskFactors Control, & Adherence To Proper Medical Therapy Dosage Schedules Etc, & Exclusion Of Other Probable Causes,[16][17].

In Past About Two Decades, Gradually Progressive Established Success Of **Various LaproScopic Procedure**s,Have Extended Horizons From Mere **Diagnostic LaproScopy** To **Laproscopic Peritoneal Lavage, Drainage**, With Restricted Extents Of Perforation Closures, Repair Anastomosis As Emergency Procedures With Associated Toxicaemia(+-)Septicaemia Of Varying Aetio-Pathogenesis.[18][19][20].

**Role Of Double Ryles' Tube Intubation,**
**(Modified Technique Of GIT Secretions Aspiration),**

In Various Gasto-Jejunostomies Repairs, For Different Indications,

? Scope To Avoid Bloating/ Flatuence, Prolonged RT Aspirations After Various Operative Procedural Steps, Gastro-Jejunostomies, Gasrtic By Pass Surgeries, Diferent Levels Of Jejuno-Jejunostomies, Hormonal Axis Influencing Gasto-Duodenal Pancreatic Enzyme Secretions Etc.) Involved **In Baritrics Obesity Surgeries Etc**., Is In Study Discussion Process,[13][14].

## IV. RESULTS

The Present Study ReAffirms The Scientific & Statistical Logistics For Importance Of GIT Secretions Aspiration,(Proximal,Distal) Around Repair, Needed For Various Indications,By Double Ryles Tube Aspiration, Alone Or In Combination With Other Associated Surgical Procedures, With/ WithOut Variable Medication Support Extents, Particularly In Compromised Situations Of Associated Critical Care Circumstances.

## V. CONCLUSION

The Described Method, Of Aspiration Of Upper Gastro Intestinal Secretions (Gastro-Duodenal,?Pancreatic, Biliary Secretions), At Two Different Levels Of Gastro Intestinal Tract, Using Two Ryles' Tubes, First (A) In The Stomach Conventionally Aspirating Gastric Secretions And Second (B), Negotiated Just Distal To Gastro – Duodenal Repair, Aspirating Pancreatic And Biliary Secretions, Also,Preventing Leakage From Site Of Repair During Phase Of Healing And Hence Facilitating Process Of Healing,Can Be Recommended As A Procedure Of Choice, In Gastro – Duodenal Repairs Specially In Cases Of Large Gastro – Duodenal Lesions Revealed During Delayed Emergency Exploratory Laparotomies, With Co-Existing Malignancy, Pancreatitis, Sepsis Etc,As Only Curetive & Or Palliative Procedure As An Adjunct To Other Extensive Surgeries.

Thus, The Modified Technique Of GIT Secretions Aspiration, Using Two (2) Ryles' Tube, As Described, Being Essentially No Harms Done,Simple, Safely Performed, Procedure, , Yet Definitely Better, Comparative Results Outcome,With Scientific,Statistical Logistic Support, Alone Or As An Adjunct,Especially In Crucial Complex Circumstances Of Associated Sepsis E.g Road Traffic Accidents, WarFare Injuries,Malignancy, Pancreatitis & Or Other Debilitating Illnesses Etc., In The Available Limited Resources Circumstances, Is An Acceptable Treatment Modality.

## ACKNOWLEDGEMENTS

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## REFERENCES

[1]. Kauffman GL J R:Duodenal Ulcer Disease: Treatment By Surgery, Antibiotics, Or Both.Adv Surg 34:121,2000.
[2]. Svane s C:Trends In Perforated Peptic Ulcer:Incidence, Etiology, Treatment, And Prognosis. World J Surg.24:277,2000.
[3]. Ohman C, Imhof M, Roher HD:Trend In Peptic Ulcer Bleeding And Surgical Management, World J Surg.24:284,2000.
[4]. Asensio JA, Feliciano DV, Britt LD, et al: Management Of Duodenal Injuries, Curr Probl Surg 30:1023-1093,1993.
[5]. Milat B ,Finger Hut A, Bori EF:Surgical Treatment Of Complicated Duodenal Ulcer: Controlled Trials. World J. Surg. 24:299,2000.
[6]. Ivatury RR, Naasoura ZE, Simon RJ et al:Complex Duodenal Injuries, Surg. Clin North Am 76:797-812,1996.
[7]. Vaughan, G.D., Frazier, O.H., Graham D.Y., Mattox, K.L., Petmecky, F.F., and Jordan, G.L. The use of Pyloric Exclusion in the management of severe Duodenal Injuries. Am. J. Surg., 134: 785, 1977
[8]. Lucas CE. Diagnosis and Treatment of Pancreatico Duodenal Injury Surg. Clin North AM 1977, 57 : 49 - 65.
[9]. Stone H.H., Fabian T.C. : Management of Duodenal Wounds. J. Trauma 19 : 334, 1979. Kelly Et. Al., 1978.
[10]. Lucas, C.E. and Ledgerwood, A.M; Factors Influencing outcome after Blunt Duodenal Trauma. J. Trauma, 15; 839, 1975.

[11]. Visner DH, Wold RI., Frey CF. Diagnosis and treatment of Pancreatic Injuries: An Analysis of Management Principles. Arch Surg 1990; 125: 1109-1113.
[12]. Feligano DV, Martin TD, Cruse PA, et al. Management of combined pancreatico duodenal injuries. Ann Surg 1987; 205: 673-80.
[13]. Ashley SW, Soper NJ:Gastric Surgery:Probl Gen. Surg. 14:1,1997.
[14]. Higa, K.D., K.B. Boone, and T. Ho, Complications of the laparoscopic Roux-en-Y gastric bypass:1,040 patients--what have we learned? Obes Surg, 2000. 10(6): p. 509-13.
[15]. Cho, TK, Mokf, Zhan WH, Fan ST, Laiecs, Wong J 1989 Somatostation in the Treatment of Acute Pancreatitis : A Prospective Randomized Control Trial GUT 30: 223 – 227.
[16]. Boey J Branicki FJ, Alagratan TT et al, Proximal Gastric Vagotomy. The Preferred Operation For Perforations In Acute Duodenal Ulcer. Ann. Surg. 1998: 208: 169-74.
[17]. Sawyers JL, Richards WO:Selective Vagotomy & Pyloroplasty, IN BakerRJ, Fischer JE(Eds):Mastery Of Surgery, Philadelphia, Lippincott, Williams & Wilkins,2001
[18]. Nathanson LK, Easter DW, Cushieri A, Laproscopic Repair/ Peritoneal Toilet Of Perforated Duodenal Ulcer.Surg. Endos 1990,4:232-3
[19]. Kathouda N, Mouiel J. A New Technique Of Surgical Treatment Of Chronic Duodenal Ulcer WithOut Laprotomy By VideoCoelioScopy, Am J Surg 1991;161: 361-4.
[20]. Lau WY, Leung KL, Kwong KH, et al: A Randomized Study Comparing Laproscopic Versus Open Repair Of Perforated Peptic Ulcer Using Suture Or Sutureless Technique, Ann. Surg 224;131,1996.
[21]. Kate V, Ananthakrishnan N, Badrinath S:Effect Of Helicobactor pylori Eradication On The Ulcer Recurrence Rate After Simple Closure Of Perforated Duodenal Ulcer:Retrospective And Prospective Randomized Controlled Studies: Br J Surg 88:1054,2001.