

## Outcome of Single Port Laparoscopic Surgery



### Medical Science

**KEYWORDS :** single port laparoscopic surgery

<b>Dr Kishor Jain</b>	4 <sup>th</sup> year resident in General surgery, M.P.Shah Medical College, Jamnagar, Gujarat
<b>Dr Rahul K Shah</b>	3 <sup>rd</sup> year resident in General surgery, M.P.Shah Medical College, Jamnagar, Gujarat
<b>Dr Mihir Chavda</b>	3 <sup>rd</sup> year resident in General surgery, M.P.Shah Medical College, Jamnagar, Gujarat

### ABSTRACT

*Laparoscopic surgery is the procedure of choice for most of benign gall bladder diseases and appendicitis unless obvious contraindication exists. The advantage of earlier return of bowel function, less postoperative pain, improved cosmesis, shorter length of hospital stay, earlier return to full activity, decreased overall cost were immediately appreciated. The idea of NO SCAR surgery gripped the surgeons all over the world. Various natural orifices like mouth (trans-gastric), umbilicus, vagina are being used as portals for surgery. Termed variously as single port access (SPA) surgery, single incision laparoscopic surgery (SILS) or one port umbilical surgery or single port incision less conventional equipment-utilizing surgery (SPICES) or natural orifices trans-umbilical surgery (NOTUS)8,9,10, We conducted this study in 30 patients admitted in surgical ward of Government Hospital, with appendicitis or patient come for interval appendectomy and benign gallbladder diseases from July 2010 to July 2012. Patients excluded were those who had acute cholecystitis, coagulopathy, biliary cancer, previous abdominal surgery, cardiopulmonary disease, pregnancy, co-morbid conditions and appendicular lump. Outcome of study is that the single port surgery is technically difficult, degree of freedom is compromised, visualization is limited, difficult to do SPLS in the learning curve, technical expertise required, more post-operative pain, risk of port site hernia, increases the over-all costs of the surgery and time required is more but it is cosmetically beneficial.*

**Introduction:** Appendicitis is the most common intra-abdominal condition requiring emergency surgery and carries a lifetime risk of 6%.(Samelson and Reyes, 1987)1.The treatment of acute appendicitis remained essentially unchanged since its first description by Charles McBurney in 1889 before the New York Surgical Society (Semm, 1983)2. Appendectomy by McBurney's incision remained the procedure of choice for nearly a century until 1983 when Kurt Semm offered an alternative, "laparoscopic appendectomy" (Sweeney and Keane, 2003). Gallstones are among the most common gastrointestinal illness requiring hospitalization. Treatment of gallstones have evolved markedly since open cheolecystectomy was first described by Langenbuch in 18824,5. Management has toured through eras of non-surgical management back to laparotomy, mini-laparotomy and now laparoscopic cheolecystectomy is the new gold standard for treatment of gallstone disease6,7. Infact laparoscopic surgery is the procedure of choice for most of benign gall bladder diseases and appendicitis unless obvious contraindication exists. The advantage of earlier return of bowel function, less postoperative pain, improved cosmesis, shorter length of hospital stay, earlier return to full activity, decreased overall cost were immediately appreciated. Soon after introduction of laparoscopic surgery the idea of NO SCAR surgery gripped the surgeons all over the world. Various natural orifices like mouth (trans-gastric), umbilicus, vagina are being used as portals for surgery. Termed variously as single port access (SPA) surgery, single incision laparoscopic surgery (SILS) or one port umbilical surgery or single port incision less conventional equipment-utilizing surgery (SPICES) or natural orifices trans-umbilical surgery (NOTUS)8,9,10, it is novel technique which promises all advantages of minimally invasive surgery with additional advantages of reduced post-operative morbidity and improved cosmesis. One of the revolutionary uses of scarless surgery is the transumbilical single port laparoscopic technique, in which the surgical scar is virtually concealed within the umbilicus. In 1996, Kala and his colleagues11 reported the first case of transumbilical single port laparoscopic appendectomy. The first case of transumbilical single port cheolecystectomy was reported in 2007 by Podolsky et al12. In our study we have made an attempt to evaluate the efficacy and effectiveness of single port laparoscopic surgeries, in particular appendectomy and cheolecystectomy. Minimal access surgery is a marriage of modern technology and surgical innovation that aims to accomplish therapeutic surgical goals with minimal somatic and psychological trauma to the patient. Minimal accesses surgeries have reduced wound access trauma and are less disfiguring than conventional surgeries. With increasing experience, it offers

cost effectiveness to both health care providers and employers by shortening operating times, shortening hospital stays and allowing faster recuperation.

**Objective:** To improve earlier return of bowel function, less postoperative pain, improved cosmesis, shorter length of hospital stay, earlier return to full activity, decreased overall cost.

**Materials and methods:** We conducted this study in 30 patients admitted in surgical ward of Government Hospital, with appendicitis or patient come for interval appendectomy and benign gallbladder diseases from July 2010 to July 2012. Patients who had acute cholecystitis, coagulopathy, biliary cancer, previous abdominal surgery, cardiopulmonary disease, pregnancy, co-morbidity and appendicular lump were excluded. In laparoscopic surgery, a rigid endoscope is introduced through a metal sleeve into the peritoneal cavity, which has previously been inflated with carbon dioxide to produce a pneumoperitoneum. Further metal sleeves or ports are inserted to enable instrument access and their use for dissection. General anaesthesia is given and surgeon stands on the left side of the patient.

#### BASIC PRINCIPLES OF LAPAROSCOPIC SURGERY:

Trocar insertion  
Verres method  
Open method  
Pneumoperitoneum creation  
Scope insertion and viewing of the interior of the abdomen  
Further steps according to surgery  
Avoidance and control of bleeding  
Avoidance of organ injury  
Avoidance of diathermy damage  
Vigilance in post-operative period

#### Assessment standards:

Postoperative pain,  
Cosmesis effect,  
Length of hospital stay,  
Earlier return to full activity,  
Cost-effectiveness

**Observation and discussion:** Of all 30 patients, 20 patients presenting with symptoms and signs of appendicitis or who came for interval appendectomy and 10 patients presenting with symptomatic gallstone disease were operated upon with the general intent of performing single port laparoscopic appendectomy (SPLA) or cheolecystectomy (SPLC) surgery. Majority

of patients presenting with appendicitis were in age group 11-30 yrs. While patients presenting with symptomatic gall stones were in age group 11-20yrs and 41-50yrs. In case of SPLA, 60% of the operated patients were males and 40% females. While in case of SPLC, 80% of the operated patients were females and 20% males. In majority of converted surgeries (multiport or open), adhesions were present or there was technical difficulty. Post-operative abdominal pain in patients operated for single port laparoscopic appendectomy surgery in majority cases (62.50 %) is localized port site pain rather than diffuse all over the abdominal pain (37.50 %). Same observation were found in case of single port laparoscopic cholecystectomy, that around 71.43 % patients were having pain at port site while only 28.57 % patients had pain all over the abdomen. No post-operative

complication occurred in either group. Patients operated for appendectomy by single port laparoscopy had a post-operative hospital stay of mean 1.81 days while that for cholecystectomy it was mean of 2.14 days. Zero incidence of port site infection was there in both the study groups.

**Conclusion:** Outcome of study is that single port surgeries are technically difficult, with compromised degree of freedom, limited visualization, difficult learning curve, technical expertise required, no more benefit in post-operative pain, risk of port site hernia, increases the over-all cost of the surgery and time required is more as compared to conventional laparoscopic surgeries but single port surgeries are cosmetically beneficial.

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