Introduction: In present days, there is controversy regarding superiority of early versus interval laparoscopic cholecystectomy in acute cholecystitis. Recent studies have demonstrated that early laparoscopic skills, recent studies have demonstrated that early laparoscopic cholecystectomy is safe for acute cholecystitis. Delaying the surgery exposes the people to the risk of complications, duration of hospital stay. Another reason for the surgeons’ preference for delaying the surgery is the fear of higher complication rates.

Removal of the gallbladder (cholecystectomy) is currently considered the best treatment option for people with acute or chronic cholecystitis. This is generally performed by elective (after 6 wk of index admission) laparoscopic cholecystectomy because of the fear of higher complication rates.

**Why do we do Interval (after 6 wk of index admission) Cholecystectomy?**

In early cholecystectomy, there is more chances of injury to the bile duct, which is life threatening condition.

Another reason for the surgeons’ preference for delaying the operation is to avoid an open operation, as there has been a perception that early operation increases the risk of conversion from laparoscopic to open surgery.

**Is there any scope for early (within seven days of clinical presentation or within 3 days of admission) cholecystectomy in acute cholecystitis?**

Delaying the surgery exposes the people to the risk of complications related to gallstones (cholelithiasis, biliary colic, acute cholecystitis, gall stone pancreatitis, non-resolution of symptoms or recurrence of symptoms before their planned operation etc.).

With the growing experience and improvement in laparoscopic skills, recent studies have demonstrated that early laparoscopic cholecystectomy is safe for acute cholecystitis.

**Materials & Methods:**

**Hospital Setting:**

The study was conducted at the surgical unit of civil hospital, Ahmedabad, a publicly funded tertiary care institution.

**Type of study:** Cross-sectional descriptive comparison study

**Duration of study:** May 2012 to October 2013

**Data collection**

A total of 50 patients, with a diagnosis of Acute cholecystitis who underwent cholecystectomy from May 2012 to October 2013, out of them 25 underwent Early Cholecystectomy, and 25 underwent Interval cholecystectomy. Data collected included clinical features, laboratory investigations, imaging, type of surgery, duration of surgery, intraoperative or postoperative complications, duration of hospital stay.

**Inclusion Criteria:**

- All male & female with or without co-morbidities like diabetic or hypertensive are included in study.
- Diagnosis of Acute cholecystitis was confirmed by history, physical examination & Ultrasonography.

**Exclusion criteria:**

- The patients having history or investigation suggestive of severe pancreatitis
- pediatric patients
- pregnant female.

**Data analysis**

- Data were entered into a computer database using Microsoft Excel spreadsheet and statistical analysis was performed with Epi Info 2002 software (CDC and WHO, 2002).
- Results are presented as frequencies, percentages and descriptive statistics.

**OBSERVATIONS & DISCUSSION**

In the present study, there was bile spillage in 8% cases in early cholecystectomy whereas 4% in interval, this difference was not statistically significant (X2=1.22 p>0.05).

In study by Lo et al. [8], there is no CBD/ vessel injury in early group (n=45), while 2.5% of pts had bile duct injury & 2.5% of pts had bleeding in Interval group (n=41). Finding of the present study is not comparable with study of Lo et al. This may be due to small study size.
These untoward events were due to unclear anatomy of calot’s triangle in both early & Interval group. GB tear was done during handling of GB during retraction in early group. Bile & stone spillage was done during retrieval of GB. This untoward events were present in only Diabetic patient. In the present study, Bleeding was managed with Cautery & pressure application, while bile & stone spillage was managed with suction-irrigation & retrieval of each stone. Bile & stone spillage are associated with wound infection. This untoward event may be brought down with increasing experience and skills during early laparoscopic cholecystectomy for acute cholecystitis. (6,10)

Factors associated with a significantly increased conversion rate include delay in surgery more than 3 days from the onset of disease, obesity, multiple comorbidities, empyema of the gallbladder, an inexperienced surgeon, and male gender. (8,12)

Table 4: To Study Difference Of Operating Time( min) Between Early And Interval Cholecystectomy

<table>
<thead>
<tr>
<th>Operating time (min)</th>
<th>Early Cholecystectomy (mean) (min)</th>
<th>Interval cholecystectomy (mean) (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yadav et al.</td>
<td>107.8</td>
<td>76.67</td>
</tr>
<tr>
<td>Kolla et al.</td>
<td>104</td>
<td>93</td>
</tr>
<tr>
<td>Lo et al.</td>
<td>135</td>
<td>105</td>
</tr>
<tr>
<td>Present Study</td>
<td>82.8</td>
<td>76</td>
</tr>
</tbody>
</table>

Though mean operation time was lower in Interval cholecystectomy, but the difference between early and Interval cholecystectomy in terms of operating time was not significant at 95% confidence limit and degree of freedom =24 -(paired t test 2.06=2.18). This finding are comparable with study of Yadav et al. (47), Kolla et al. & Lo et al. (8,13)

There are many factors affecting operating time like, experience of surgeon, unclear anatomy of calot’s triangle, delay in surgery more than 3 days from onset of disease, obesity, multiple comorbidities, empyema of GB etc. (10,14,15).

In the present study, operating time in early group was more due to difficult dissection of calot’s triangle & associated comorbidities.

Table 5: To Study Difference Of Total Hospital Stay( days) Between Early And Interval Cholecystectomy

<table>
<thead>
<tr>
<th>Total hospital stay Mean (days)</th>
<th>Early Cholecystectomy</th>
<th>Interval cholecystectomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kolla et al.</td>
<td>4.1 (2-20)</td>
<td>10.1 (5-23)</td>
</tr>
<tr>
<td>Lo et al.</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Lai et al.</td>
<td>7.6</td>
<td>11.6</td>
</tr>
<tr>
<td>Present Study</td>
<td>6</td>
<td>12</td>
</tr>
</tbody>
</table>

In the present study, total hospital stay was more in Interval cholecystectomy comparing with early cholecystectomy group. This difference was found to be statistically significant at 95% confidence limit and degree of freedom =24 -(paired t test =8.69=2.08. This finding is comparable with study of Kolla et al., Lo et al. & Lai et al. (8,12,16)

In Interval group pts requiring two treatment episodes, one for the conservative treatment of acute cholecystitis and another for the definitive surgical treatment. In Early group, main advantage is less hospital stay due to definitive treatment in single admission. This reduces pharmacological expenses & hospital cost, which confer positive socio-economic impact to patients from lower socio-economic class (13) & This is more beneficial to a developing country like India.

Table 6: Proportion of patients who required emergency LC in waiting period of Interval cholecystectomy

| Proportion of patients who required emergency LC |
In the present study, 16 % of pts underwent emergency LC. This is comparable with the findings of Senapati et al. & Lai et al. (16,17) About one-fifth (20%) of the patients in the delayed group failed to improve with conservative treatment and required emergency cholecystectomy.

In the present study, emergency LC was due to acute attack of cholecystitis before their schedule Interval LC. This was major disadvantage of interval group.

Summary

In present study, in early group, one had mirizzi syndrome & other had CBD stone, laparoscopy was converted into open cholecystectomy. In two pts of interval group, who had CBD stone, laparoscopy was converted open cholecystectomy. This conversion is not statistically significant.

In early group, operating time was slightly higher than interval group. In early cholecystectomy there is inflammation obscuring the view of calot’s triangle, which may be responsible for increased operating time. But with increasing experience this can be bring down. Thus difference between early and Interval cholecystectomy in terms of operating time is not significant.

In the present study, operating time is not significant.

CONCLUSION

Early laparoscopic cholecystectomy is superior to Interval laparoscopic cholecystectomy in terms of a reduction in total hospital stay. Early operation may be safer and has definite socioeconomic benefits. There was no significant increase in complications or conversion rate, although operating time was increased. We believe that increasing experience should bring the complication rate in the early group. Interval cholecystectomy increases the risks of further gallstone related complication & there is likely to be no advantage to initial conservative management and Interval laparoscopic surgery for acute cholecystitis in patients suitable for surgery.

Total hospital stay was more in Interval cholecystectomy group because of second admission for definitive treatment. Early group had less total hospital stay, which significantly reduce socioeconomic burden of society.

During waiting period in Interval cholecystectomy group, 4 patients had attack of acute cholecystitis, for which Emergency laparoscopic cholecystectomy was done. It indicates that Interval cholecystectomy does not give any guaranty for complete resolution of acute attack.

Thus, there is no significant difference between early and Interval cholecystectomy in terms of operating time & conversion to open. However there is definitive advantage of Early cholecystectomy over Interval cholecystectomy in reducing total hospital stay & providing definitive treatment in initial admission.

REFERENCE