



CODEN [USA]: IAJ PBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.2671909>Available online at: <http://www.iajps.com>

Research Article

**QUASI EXPERIMENTAL STUDY TO DECIDE THE
ADEQUACY AND SECURITY OF THE HARMONIC SCALPEL
IN LAPAROSCOPIC CHOLECYSTECTOMY****¹Dr Waqar Qamar, ²Dr Arslan Arshad Satti, ³Dr Sarah Fatima****¹RHC Doultala, Gujar Khan, Rawalpindi, ²MO, RHC Doultala, Gujar Khan, Rawalpindi, ³Yusra
Medical and Dental College Islamabad.****Article Received:** March 2019**Accepted:** April 2019**Published:** May 2019**Abstract:***Objective: To decide the adequacy and security of the Harmonic Scalpel in laparoscopic cholecystectomy**Study Design: Quasi Experimental Study.**Place and duration of study: Mayo Hospital, Lahore from Jan to December 2018.**Patients and Methods: An aggregate of 110 back to back patients experiencing laparoscopic cholecystectomy in which the techniques were performed solely with the Harmonic Scalpel were incorporated. Patients were of either sex and of various age gatherings. Just three patients were worked in crisis and all other experienced elective medical procedure. Simplicity of dismemberment and lucidity of employable field [as controlled by meaning of analyzation planes, requirement for utilizing water system/suction and requirement for clearing the smoke by departure of gas], haemostasis and control of vascular pedicles, rate of entanglements, rate of transformation to open medical procedure and analyzation time were examined. Information was investigated by SPSS. Frequencies and rates were determined**Results: There were 65 females and 40 guys. Age extend was 24-72 years with mean age 45 years. Water system with saline and suction was required in just 5 cases. There was for all intents and purposes no or negligible whitish smoke and none required departure of gas to clear the employable field from it. No patient had discharge of any degree. Cystic course was cut in 40 (36.36%) patients and in all others [54.54%] it was verified by consonant coagulation. None had CBD or inside damage or post operation sepsis. Two (1.82%) cases expected transformation to open medical procedure because of thick bonds and cloud life systems. Cystic channel was dismembered out with a similar gadget yet was cut in every one of the cases. Normal analyzation time was 40 minutes (extend, 17-75 minutes). There was no mortality.**Conclusion: The Harmonic scalpel is protected and a specialist neighborly instrument for laparoscopic cholecystectomy***Keywords:** Cholecystectomy, Harmonic scalpel, laparoscopy.**Corresponding author:****Dr. Waqar Qamar,**

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Please cite this article in press Waqar Qamar et al., *Quasi Experimental Study to Decide the Adequacy and Security of the Harmonic Scalpel in Laparoscopic Cholecystectomy.*, Indo Am. J. P. Sci., 2019; 06(05).

INTRODUCTION:

Cholecystectomy is one of the commonest surgeries and without a doubt laparoscopic cholecystectomy is the method of decision in the treatment of nerve stones infection [1-3]. For the careful haemostasis and cutting, electrocautery has been customarily utilized as the primary instrument. Anyway the potential risks related with the utilization of electrocautery are all around archived and in this manner present incredible restrictions amid medical procedure [4].

Conquering the potential risks of electrocautery, the presentation of ultrasonically actuated (Harmonic) surgical blade over 10 years prior has given a more secure option in contrast to routine careful use [5]. This technique for tissue dismemberment depends on the coagulating and cavitation impacts given by a quickly vibrating cutting edge reaching different tissues [6,7]. The guideline is change of the electric power into mechanical development of the working piece of the instrument longitudinally, by piezoelectrical transducer arranged in the hand piece. The subsequent lessening in temperatures, smoke, and parallel tissue harm makes the Harmonic scalpel and a lot more secure instrument as contrasted and electrocautery. Consonant surgical blade has ended up being an effective and safe instrument for dismemberment and hemostasis in both open and laparoscopic surgeries [8,9]. The essential utilization of the Harmonic surgical blade in laparoscopic cholecystectomies has been for the division of grips, haemostasis, coagulation and cutting of the cystic conduit and analyzation at liver bed.

Upgrades in its cutting edge tip presently additionally give ultrasonic division and conclusion of the cystic conduit in this manner deterring the requirement for clasps [5,10]. The instrument was presented in CMH Rawalpindi around three years back and has been utilized in different open and laparoscopic methodology. This examination makes an undertaking to equitably address the attainability of its customary use in laparoscopic cholecystectomies in our set up.

PATIENTS AND METHODS:

This semi exploratory investigation was led at Mayo Hospital, Lahore from Jan to December 2018. Information gathered on indicated group was examined. A sum of 110 continuous patients experiencing laparoscopic cholecystectomy in which the systems were performed solely with the Harmonic Scalpel was incorporated into the investigation. Every single other instance of cholecystectomies, open or laparoscopic, in which

consonant surgical blade was not utilized were barred. Patients were of either sex and of various age gatherings. A pre-usable evaluation was finished by the specialist and the anesthetist and a full educated composed assent was gotten in every one of the cases. Four standard ports were utilized with patient situated in 20 degree head side up and tilting of bed to one side. The 10-mm-sharp edge Harmonic Scalpel gadget (produced by Ethicon Endosurgical) was utilized through a 10-mm epigastric port and kept at full power mode. Coagulation of vascular pedicles was accomplished with the edges shut in the level position. Coagulation was accomplished for 10-20 seconds in various areas along the length (1 cm) before conclusive division. At the point when the cystic corridor was partitioned, it was analyzed and coagulated nearer to annoy bladder and afterward isolated. Analyzation in the liver bed was done either with coagulations and cutting with edge closes shut or with open edge of the sharp edge. For resection of the omental attachments the tissues were coagulated together in little packages and afterward cut. Every one of the patients got three parenteral dosages of a blend of a third era cephalosporin with an aminoglycoside. First portion was given at the season of acceptance and two dosages were given post-operatively.

Parameters studied were:

1. Ease of Dissection and clarity of operative field as determined by: definition of dissection planes, need for using irrigation/suction and need for clearing the smoke by evacuation of gas.
2. Haemostasis and control of vascular pedicles.
3. Rate of complications determined by minor or major intra-operative or postoperative hemorrhage, CBD injury, bowel injury, and rate of intra abdominal or wound infection.
4. Rate of conversion to open surgery.
5. Dissection time.

Information was investigated by SPSS. Enlightening insights like mean, recurrence and rates were utilized to portray the information.

RESULTS:

An aggregate of 110 patients were examined. There were 65 females and 40 males. Age range was 24-72 years with mean age 45 years. Three (2.73%) cases were proclaimed as ASA-3, 23 (20.91%) cases as ASA-2 and all other 84 (76.36%) case as ASA-1. An aggregate of 107 (97.27%) patients were treated as elective cases and just 3 (2.72%) patients were worked in crisis.

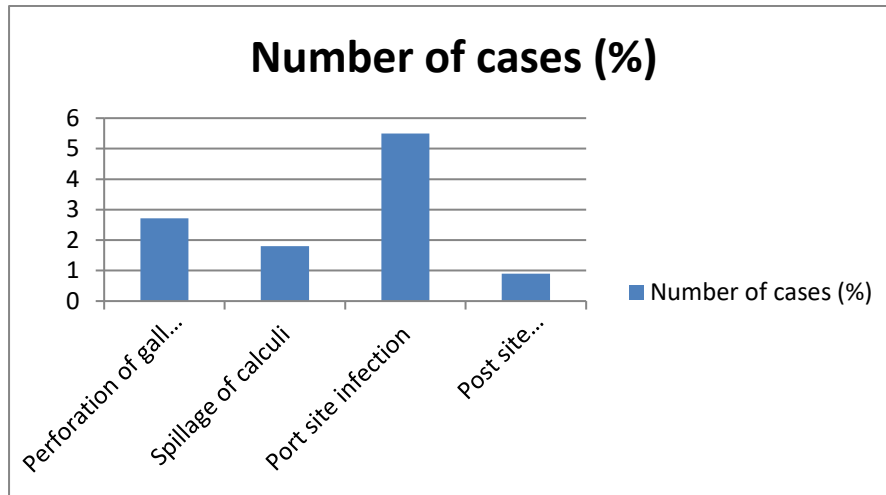
Clearness of usable field was exceptional. Water system with saline and suction was required in just 5

(4.54%) cases. Camera focal point was never required to be cleaned amid the system. An insignificant whitish smoke was experienced and none required departure of gas to clear the usable field. Haemostasis was all around verified in every one of the cases. Cystic corridor was overseen by just

symphonious gadget in 40 (36.36%) cases in this manner blocking the requirement for section. In the rest of the 60 (54.54%) cases it was verified by section in ordinary way. Confusions experienced amid medical procedure are appeared table.

Table: Showing complications associated with use of harmonic scalpel (n=110)

Complications	Number of cases (%)
Perforation of gall bladder and spillage of bile	3(2.72%)
Spillage of calculi	2(1.8%)
Port site infection	6(5.5%)
Post site haematoma	1(0.9%)



No remarkable or uncontrolled discharge was recorded in any patient. There was no damage to normal bile pipe or post employable biliary release in any patient. Neither any patient had gut damage. None had proof of an intra-stomach sepsis or discernible ascent in temperature in prompt or late post employable period. Change to open medical procedure was required in just 2 (1.81%) cases by virtue of trouble in analyzation and inability to continue. Normal analyzation time was 40 minute range 17 minutes to 70 minutes. There was no mortality in this examination.

DISCUSSION:

It is settled now that the laparoscopic cholecystectomy is the technique of decision in the treatment of nerve stones infection [9,10]. The security issues of laparoscopic systems anyway have dependably been in discussion over last numerous decades. The best issue has been the potential difficulties related with the traditional utilization of electrocautery [11]. The presentation of consonant gadget has been an achievement and has lightened

the feelings of dread related with Electrocautery as well as has made the laparoscopic methods progressively alluring and alleviating for the administrators [8,12]. The instrument was presented over 10 years prior yet in our setup its ordinary utilize began only three years back at CMH Rawalpindi. Since its presentation the Harmonic scalpel has obtained numerous applications. It is currently utilized broadly in medical procedure of the head and neck, chest, biliary framework, stomach, gastroesophageal intersection, little gut, colon, rectum, kidney, adrenal organs and others [6]. Symphonious scalpel works by coagulating and cutting viably with the substitution the high recurrence current subsequently disposing of the threats of direct current application. What's more, it likewise disposes of the incidental and unrecognized, electrical arcing wounds which are known to be related with the utilization of electrocautery[11] Harmonic scalpel is in this way a conceivably more secure instrument for tissue analyzation. An all out Harmonic surgical blade dismemberment in the execution of a laparoscopic cholecystectomy is very

much portrayed in the European writing [5,7,9,12,13] in which no clasps were utilized either for the cystic pipe or the supply route. Bessa SS and partners [5] gave a depiction of 120 patients with symptomatic gallstone malady, and portrayed the symphonious gadget as sheltered and compelling in haemostasis just as bile channel control. We have utilized symphonious gadget for the control of cystic conduit just in 40 cases in view of our uncertainties and absence of individual experience. Anyway the phenomenal vascular control has developed the certainty to utilize it all the more every now and again in future.

We didn't utilize symphonious gadget for the Cystic channel control and in all cases utilized the ordinary section. Anyway the depictions of one hundred cases by Westervelt J. [12] and one hundred cases by Tebala GD. [13] with reference to add up to symphonious dismemberment [clipless surgery] give sound proof of the adequacy and security of this instrument. Hüscher CG and associate [14] have portrayed 461 successive patients experiencing laparoscopic medical procedure with practically identical by and large outcomes with the utilization of consonant gadget and regular routine with regards to utilizing electrocautery and clasps. Anyway the simplicity of the methodology and clearness of the field can't be overemphasized as it is the sign of utilization of symphonious gadget. Esteem Harmonic scalpel in intense cholecystitis has been depicted by Catena F and associate [15] and Salamah S M A [16]. In our investigation just three cases were worked in crisis however this constrained experience surely bolsters these examinations. Transformation to open cholecystectomy is required because of numerous elements [17,18]. Dismemberment with consonant gadget gives an all the more spotless clear and without smokes field of activity and along these lines decreases the employable time, the dying, the shot of complexities and requirement for transformation to 'open'. In such manner an insignificant transformation rate in our examination underpins the portrayal of Minutolo v and colleagues⁸ and Ghamdi AS and associate [10] Gallbladder aperture and loss of bile or stones into the peritoneal cavity. is a notable complexity of laparoscopic cholecystectomy [11]. The utilization of ultrasonic dismemberment in laparoscopic cholecystectomy decreases the occurrence of gallbladder puncturing and encourages the task to advance easily. In our examination think about there was insignificant spillage and it bolsters the perceptions of Amarin NS [9] and Hüscher CG and associates [14]

The usable time in laparoscopic cholecystectomy

differs relying upon such factors as: the level of bonds, the perceivability of the structures, the experience of the careful group, requirement for changing the instruments for dismemberment, cutting, coagulation and cutting. In our examination the normal working time was forty minutes that included such cases which would be generally viewed as troublesome. The flexible utilization of Harmonic surgical blade conquers a significant number of the confinement of utilizing electrocautery and advantages from multiple points of view as portrayed by Catena F and associates [19]. It directly affects diminishing the general activity time and our investigation underpins their portrayal. Today it is undoubted that Laparoscopic cholecystectomy is the strategy of decision for gallstone illnesses [20], yet like some other system it conveys dangers of certain complexity. The undertakings for better wellbeing and simplicity for the administrators will proceed however at present the utilization of consonant surgical blade takes a prime position in such manner.

The expense of the instrument is a vital issue in our set up, yet it needs increasingly point by point see and a different research exertion to address it impartially.

CONCLUSION:

The Harmonic surgical blade is protected and a specialist well disposed instrument. Lucidity of usable field and compelling haemostasis is momentous with its utilization. It results in insignificant change rate even in troublesome cases. It is along these lines an exceptionally appealing employable device for laparoscopic cholecystectomies.

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