Experience of Resident Assistant Does Not Influence Incidence of Common Bile Duct Injuries During Laparoscopic Cholecystectomy

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Background

Common bile duct injuries (CBDI) are a significant complication of the 800,000 cholecystectomies that are performed yearly in the United States. The CBDI rate for laparoscopic cholecystectomy (LC) is around 0.5%. A recent publication urged practicing general surgeons to perform cholecystectomy with a qualified assistant, i.e., another surgeon as opposed to a surgery resident, to decrease the chance of CBDI and litigation. The aim of this study was to determine if a correlation between resident level of education and CBDI exists.

Methods

A retrospective review of laparoscopic cholecystectomies was performed at a single institution from 2003–2008. Data collected included demographics, postgraduate year (PGY) of the assisting resident, incidence of CBDI, and other reported injuries. General surgery attendings were also surveyed regarding practice patterns.

Results

Of the 3484 laparoscopic cholecystectomies performed, 5 (0.14%) CBDI occurred. The assistants were PGY4 or 5 residents. Fifteen other injuries occurred with a rate four times greater than that of CBDI at 0.43%.

Pt	Age	Diagnosis	Access	Location	Previous Surgery	PGY	Conversion	CBD Stones	Injury Delay
1	79	Cholecystitis	Veress	Umbilical	None	4	Yes	No	No
2	80	Cholecystitis	Veress	Umbilical	Open appy	5	Yes	No	No
3	68	Cholecystitis	Veress	Umbilical	RYGPB	4	Yes	No	No
4	59	Cholecystitis	Veress	Umbilical	None	5	No	No	No
5	61	Cholecystitis	Veress	Umbilical	None	4	No	No	No

Table 1: Demographics of the five patients who suffered a common bile duct injury during the study period.

Pt	Attending (yrs in practice)	Difficulty	IOC	Injury	Management	Final Pathology
1	10	Omental adhesions	No proximal filling	Cystic duct/CBD junction	18 Fr T tube	Acute cholecystitis
2	17	Adhesions	No Proximal filling	CBD clipped and cut	12 Fr T tube	Acute cholecystitis
3	17	Perc chole, adhesions	n/a	Cystic duct avulsion	12 Fr T tube	Severe acute inflammation of GB
4	9	Adhesions	No proximal filling	CBD clipped and cut	14 Fr T tube	Gangrenous cholecystitis
5	18	Adhesions	No proximal filling	CBD clipped and cut	12 Fr T tube	Acute cholecystitis

Table 2: Characteristics of the injury and management of the five common bile duct injuries during the study period.

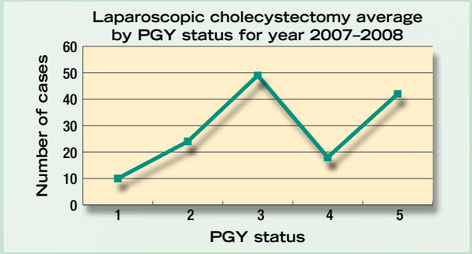

Figure 1: Average number of laparoscopic cholecystomies performed per post-graduate year at Lehigh Valley Health Network.

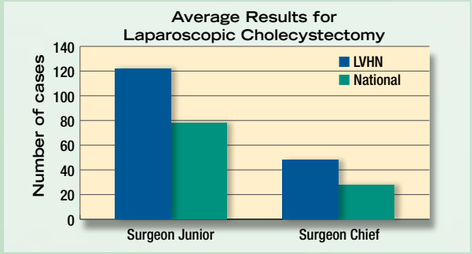

Figure 2: Comparison of average number of laparoscopic cholecystomies performed by residents at Lehigh Valley Health Network compared to national averages.

Years in Practice	Average Number per Year	Pneumoperitoneum Technique	Indication for Hasson	Veress@ Palmer's Point	Routine IOC	Indication for IOC	Resident Performing 50% of Cases	Trigger to Take Over Dissection
12	25	veress	previous midline incision		no			
4	100	veress		previous midline	no	anatomy/ difficult dissection	junior	
12	25	veress	recent midline laparotomy		no			
17	20	veress	previous midline incision		no	anatomy/ CBD stone	senior	difficulty, ID sutures
20	175	veress	multiple previous abdominal surgeries		yes	n/a	junior	difficult anatomy/ significant bleeding
20	75	both	extensive surgery		yes	n/a	intern	difficult dissection, unclear anatomy, failure to progress
10	50	veress	previous surgery			no		
3.5	50	veress	prior LUQ surgery		yes	n/a		
NR	30	veress	prior surgery/scar tissue		no	ACS criteria/ never for anatomy	intern	possible injury, resident not able to perform dissection

Table 3: Survey results from nine general surgery attendings at Lehigh Valley Health Network regarding clinical practice and resident education.

Conclusion

CBDIs are among the most significant complications in a general surgery practice. Our data, from a large residency program (four categorical residents/year during the study period), show a CBDI injury rate well below the nationally quoted rate. All PGY levels assist in LC and with the rate of CBDI at our institution being well below the accepted percentage. No correlation between CBDI and level of the PGY assistant was shown.