ACHIEVING LEARNING CURVE IN OAGB

A CUSUM ANALYSIS

Bariatric surgery is currently considered the most effective and durable treatment option for morbid obesity. Laparoscopic OAGB is a technique that is gaining more and more approval among surgeons worldwide.

No data has been provided in literature about the learning curve for OAGB.

The aim of our study was to evaluate the learning curve of OAGB in two different SICOB obesity center.

Cumulative Sum (CUSUM) test was used to evaluate the achievement of the learning curve.

We retrospectively reviewed a prospective collected database containing all consecutive patients which underwent OAGB between January 2019 and December 2021 in two SICOB centers.

The procedures were performed by **three different surgeons**: two young surgeons (T1 – T2) with experience in laparoscopic surgery (VLC, TAPP, Sleeve gastrectomy) and an experienced bariatric surgeon (E).

A total of **225 patients** have been evaluated and divided into **three groups** (75 per group) in the order of the procedures performed by each surgeon.

The study analyzed the course of the operation and patient hospitalization, comparing those groups. **CUSUM test** was used to evaluate when the trainee's operative time became consistently similar to that of the senior surgeon, assessing the achievement of the learning curve

DATA COLLECTED INCLUDED:

Pre-operative data:

- BMI
- comorbidities
- sex
- previous surgery
- ASA

Intra-operative data :

- operative time
- type of anastomosis
- intra-operative complications
- blue test

Post-operative data:

- lenght of hospital stay
- post-operative complications (Clavien-Dindo Classification)

We considered the procedure as divided in 5 steps:

1 angle of His dissection

2 entering the lesser sac at crow's foot

3 pouch creation

4 ileal loop measurement

5 anastomosis

We asked to the trainees which step they found more difficult to perform during each procedure.

RESULTS

No differences in biometric features or preoperative factors have been found between the three groups.

		sex		
		M	F	Tot
surgeon	T1	19	56	75
	T2	21	54	75
	E	21	54	75
Tot		61	164	225

P 0.914

		comorbidities		
		no	yes	Tot
surgeon	T1	54	21	75
	T2	61	14	75
	E	60	15	75
Tot		175	50	225

P 0.331

ANOVA

		SS	df	MS	F	Sign.
BMI	Between	125,487	2	62,744	2,343	,098
	Within	5945,132	222	26,780		
	Total	6070,620	224			
age	Between	309,796	2	154,898	1,598	,205
	Within	21513,200	222	96,906		
	Total	21822,996	224			
Op time	Between	1162,809	2	581,404	1,055	,350
	Within	122338,907	222	551,076		
	Total	123501,716	224			

REPORT

Surgeon		Op time	BMI	age
T1	mean	88,8800	44,9433	36,9867
	N	75	75	75
	Std variation	16,00419	5,24454	9,83581
T2	mean	85,6800	46,6325	39,7333
	N	75	75	75
	Std variation	19,88763	5,22667	10,87190
E	mean	83,3333	46,3959	37,6267
	N	75	75	75
	Std variation	31,64769	5,05137	8,70504
Tot	mean	85,9644	45,9906	38,1156
	N	225	225	225
	Std variation	23,48078	5,20586	9,87036

No intra- or post-operative complications differences were found.

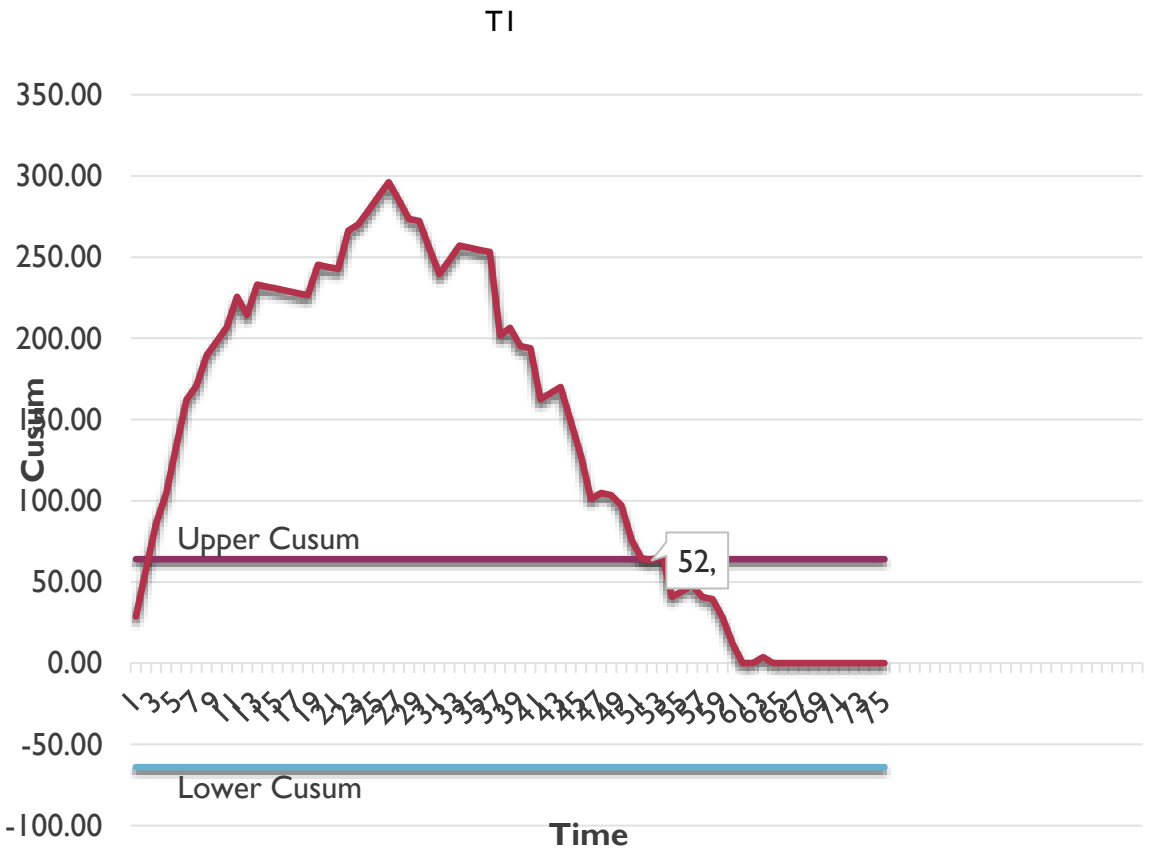
		Intra-op complications		
		no	yes	Tot
surgeon	T1	73	2	75
	T2	72	3	75
	E	73	2	75
Tot		218	7	225

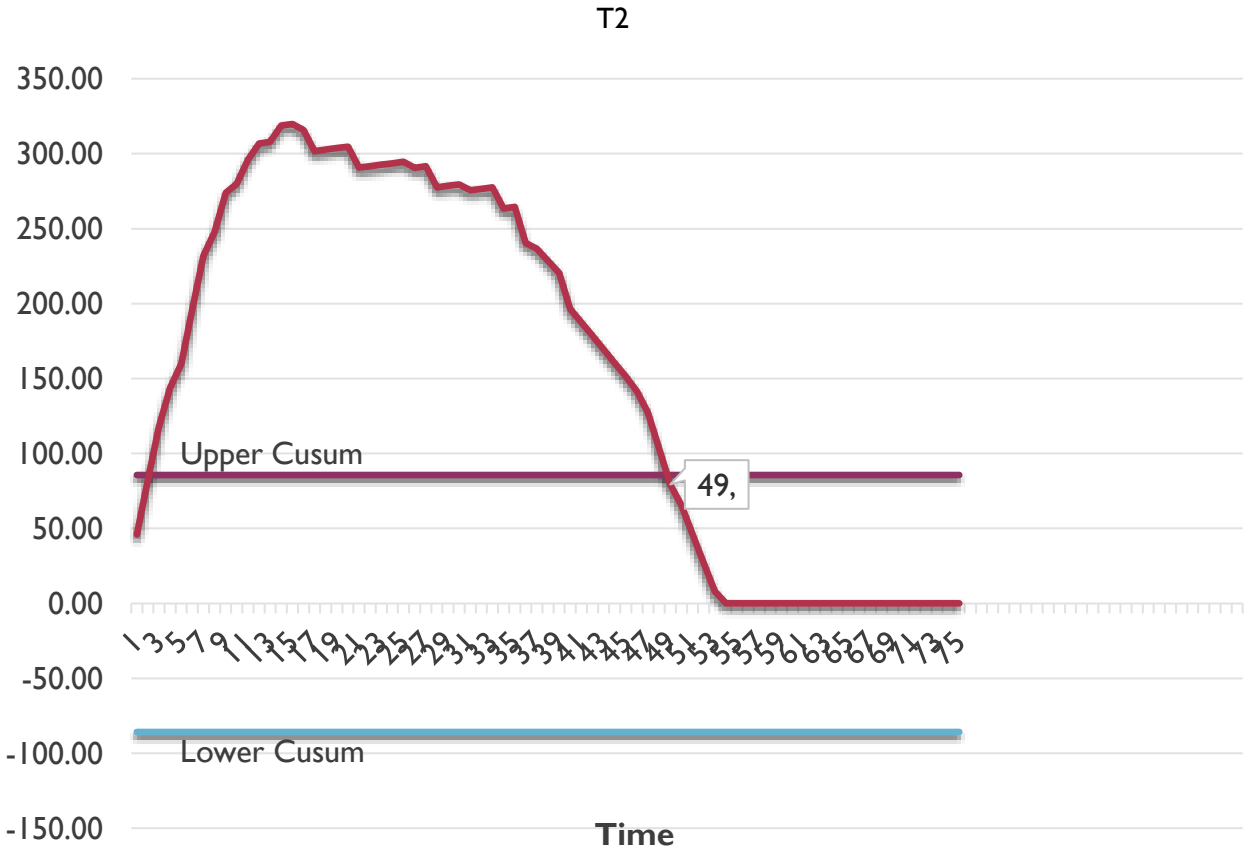
P 0.863

		Post op complications		
		no	yes	Tot
surgeon	T1	74	1	75
	T2	75	0	75
	E	75	0	75
Tot		224	1	225

P 0.366

A CUSUM test was used to determine the learning curve using the senior's mean ± Standard Deviation of OT as benchmark. The two trainees achieved the learning curve after 49 and 52 procedures.





During the first 40 procedures the more difficult steps for both trainees were the steps 1 and 2.

After 40 cases both trainees did not find many difficulties during the entire procedure.

	SURGEON	N	Mean	Std. deviation	P
step1	T1	75	6,2533	1,87511	0.313
	T2	75	6,5600	1,83244	
step2	T1	75	6,3333	1,89118	0.55
	T2	75	6,1467	1,92910	
step3	T1	75	5,4800	,60090	0.594
	T2	75	5,5333	,62240	
step4	T1	75	4,2400	,67464	0.442
	T2	75	4,1600	,59366	
step5	T1	75	5,4400	,93346	0.474
	T2	75	5,5600	1,10576	

OAGB is an arising procedure, that requires the acquisition of advanced laparoscopic skills.

In our case series we found that the achievement of a learning curve after at least 50 procedures.

GRAZIE PER L'ATTENZIONE