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Learning curve in esophageal endoscopic submucosal dissection by Western endoscospists trained in Japan: experience in Latin America

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HIGLIGHTS

- This study aimed to assess the learning curve effect on patient's clinical outcome for EESD. Retrospective observational study, enrolling patients that underwent EESD from 2009 to 2021, divided in 2 groups. Mean procedure time was 111.8 min and 103.6 min for T1 and T2, respectively (*P*=0.004). The learning curve in esophageal ESD could be overcomed effectively and safely by an adequately trained Western endoscopist.

ABSTRACT – Background – Esophageal endoscopic submucosal dissection (EESD) is a complex and time-consuming procedure at which training are mainly available in Japan. There is a paucity of data concerning the learning curve to master EESD by Western endoscopists. **Objective** – This study aimed to assess the learning curve effect on patient's clinical outcome for EESD. **Methods –** This is a retrospective observational study. Enrolling patients that underwent EESD from 2009 to 2021. The analysis was divided into two periods; T1: case 1 to 49 and T2: case 50 to 98. The following features were analyzed for each group: patients and tumors characteristics, en-bloc, complete and curative resection rates, procedure duration and adverse events rate. **Results –** Ninety-eight EESD procedures were performed. Mean procedure time was 111.8 min and 103.6 min for T1 and T2, respectively (*P*=0.004). En bloc resection rate was 93.8% and 97.9% for T1 and T2, respectively (*P*=0.307). Complete resection rate was 79.5% and 85.7% for T1 and T2, respectively (*P*=0.424). Curative resection rate was 65.3% and 71.4% for T1 and T2, respectively (*P*=0.258). Four patients had complications; three during T1 period and one during T2 period. Overall mortality rate: 0%. **Conclusion** – The esophageal endoscopic submucosal dissection could be performed effectively and safely by an adequately trained Western endoscopist.

Keywords – Endoscopic submucosal dissection; learning curve; superficial esophageal neoplasms.

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INTRODUCTION

Endoscopic submucosal dissection (ESD) is currently considered the first line of treatment for superficial esophageal neoplasms. However, ESD is technically challenging and time-consuming, hindering the expansion of esophageal ESD in Western countries[1-8]. The long learning curve needed to achieve proficiency in ESD, requires that the operators interested in learning the technique to be enrolled in specialized training programs, which are mainly available in Japan, imposing obstacles to a formal training among Western endoscopists, particularly from Latin American countries[9-12].

There are limited scientific evidences addressing issues in relation to the learning curve of esophageal ESD training. Most of the available literatures are based on Eastern studies and mainly focuses on gastric and colorectal ESD. Therefore there is a lacked of international consensus with standardized concepts about esophageal ESD learning, including the minimum number of esophageal ESD procedures needed to achieve a threshold for technical competency as well as the need for previous experiences with endoscopic mucosal resection (EMR), gastric and/or rectal ESD, hemostasis and clipping technique[13-16].

Efficacy (en bloc and complete resection rate), efficiency (procedure time), safety (rate of complications associated with the procedure) are the main parameters utilized to evaluate esophageal ESD proficiency. It is recognized that in the first stage of the learning curve, improvements in the efficacy-safety profile should be accomplished, while at the last stage efficiency should be optimized. Nevertheless, studies with a larger cohort of patients are lacking to validate this assumption[17-21]. The aim of our study is to analyze and describe the learning curve effect in esophageal ESD developed by a single Western endoscopist who had received formal training of ESD in Japan, achieving thus far one of the largest individual series on esophageal ESD from Latin America.

METHODS

Patients

This is a retrospective observational study. The data was extracted from a prospectively generated database of consecutive patients from 2009 to 2021, whom underwent ESD for superficial esophageal neoplasms by a single operator (VA).

Inclusion criteria were patients referred for endoscopic resection with early neoplasms, it is important to detail that all patients enrolled in our study were evaluated prior to ESD only by image-enhanced endoscopy (IEE) and lugol or acetic acid chromoendoscopy by an expert operator, in order to determine the degree of neoplastic invasion to deep layers, and only in some doubtful cases endoscopic ultrasonography (EUS) and computed tomography (CT) were used to optimize the preoperative staging. Patients with advanced tumors showing massive submucosal invasion or beyond on preoperative staging or with clinical conditions considered unsuitable for general anesthesia and endoscopic surgery were not included in the study.

The patients enrolled in chronological order from 2009 to 2021 were divided in 2 groups, in order to obtain an equal number of patients in each group: The first period (T1) included patients from case 1 to case 49 and the second period (T2) included patients from case 50 to case 98 as was in previous papers[11,12,16]. The following data were calculated for each group: age, gender, tumor location, involvement over 3/4 circumference, tumor size, mean procedure time, en bloc resection rate, complete resection rate (R0), curative resection rate, adverse events rate and specimen histological report.

En bloc resection rate, complete resection rate with free margins (R0 resection), and curative resection rate were calculated according to current Japanese guidelines[1]. The curability criteria considered for squamous cell carcinoma in the histological analysis of the resected specimen were: 1) Absence of lymphovascular invasion 2) Tumors limited to the epithelium (pT1a-EP) or lamina propria (pT1a-LMP) 3) Negative resection margins (Complete resection)[1]. The curability criteria considered for adenocarcinoma in the histological analysis of the resected specimen were: 1) Absence of lymphovascular invasion 2) Tumors limited to the epithelium (pT1a-EP), lamina propria (pT1a-LMP) or muscularis mucosa (pT1a--MM) 3) Well differentiated component 4) Negative resection margins (Complete resection)[1]. Histopathological assesment was performed according to WHO classification[2].

ESD procedures

All patients underwent ESD under general anesthesia. After a detailed endoscopic assessment with high-definition white light endoscopy (WLE), virtual chromoendoscopy and 0.8% lugol staining (for squamous-cell tumors), lesions were diagnosed as indications of ESD and were classified according to the Paris classification. ESD procedures were carried out, using a single channeled endoscope with a needle-type knife (Flush Knife BT 1.5 or 2.0, Fujifilm Co., Tokyo, Japan) connected to the electrosurgical unit (ERBE VIO 200S, 200D or 300D, Germany), and a 4 mm long cap (Elastic Touch, Top Co., Japan) attached to the tip of the endoscope. Each procedure followed five steps: 1) Lesion marking using soft coagulation mode, effect 6, 100 watts, 2) Submucosal injection to lift lesion with 0.4% sodium hyaluronate in teardrops form (Adaptis Fresh®, Legrand Laboratory, Brazil)[3], 3) Mucosal incision with Endocut I, effect 2, cut length 3 and cut interval 2, 4) Submucosal layer dissection, using forced coagulation mode, effect 3, 50 watts and 5) Hemostasis of blood vessels using soft coagulation mode, effect 6, 100 watts. Blood vessels were sealed with the knife or with coagulation forceps (Coagrasper, Olympus Co., Tokyo, Japan) depending on vessel size. Antibiotic prophylaxis with intravenous cephalosporin (or clindamycin if history of allergy) was used in all patients, despite the absence of standardized consensus supporting the routine use of antibiotic prophylaxis in patients undergoing esophageal ESD, as opposed to colorectal ESD[4]. In the postoperative period all patients received proton pump inhibitor for 4 weeks and sucralfate for 2 weeks. A 4-week prednisone-based protocol was administered to patients with semi-circumferential resection over 75% of the circumference. The protocol consisted of 30 mg of oral prednisone started on the 3rd postoperative day and the dose was tapered over 4 weeks period: 30 mg/day at week 1, 20 mg/day at week 2, 10 mg/day at week 3 and 5 mg/day at week 4[5].

Statistical analysis

The tabulation of the data was performed using Microsoft Excel for Windows 2010 and statistical analysis was completed using SPSS version 24. To evaluate the learning curve for esophageal ESD, the study was divided in two periods of 49 ESD procedures each in chronological order. The univariate analysis for continuous quantitative variables was conducted using the Fisher exact test to compare the differences between the two periods (T1 and T2). Chi-square test was used on both groups for the categorical variables. A procedure time curve was developed using all the values of both groups. The degree of statistical significance (*P*) for each of the variables was calculated (*P* value of <0.05 was considered statistically significant).

Ethical considerations

The authors declare that the study consisted of a retrospective assessment of the learning curve in esophageal ESD and was conducted in accordance to the Declaration of Helsinki. This study was limited to analysis and description of the statistical calculations of all the patients on both groups (T1 and T2) that underwent esophageal ESD that fulfilled the criteria of inclusion. This study took place in two endoscopic referral centers in Brazil with previous informed consent obtained from the patients and approval by the Institutional Review Board (IRB), obtained on March 8th 2021. This study complied with all norms for scientific research, including the confidentiality of patients data.

RESULTS

During the aforementioned study period, 101 esophageal ESDs were performed in 82 patients. Three procedures were discontinued and excluded from analysis due to the presence of non-lifting sign. These three cases were excluded from the analysis and managed accordingly: one patient was referred for esophagectomy and the histological assessment of the esophagus revealed deep submucosal (SM) invasion; one patient had previously undergone radiotherapy for a previous esophageal tumor and was referred to additional chemoradiotherapy; and the third patient was considered unfit for surgery and was treated with chemoradiotherapy. Finally, 98 lesions in 79 patients were analyzed (FIGURE 1). From the patients included in the analysis, a total of 23 patients were women (29.1%) and 56 were men (70.8%). The duration of the first period (T1) and the second period (T2) was 83 months and 55 months respectively.

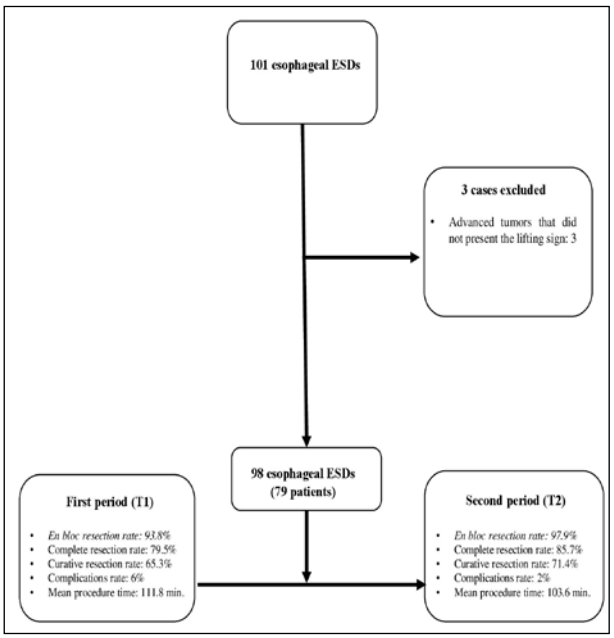

FIGURE 1. Outline of the study design.

Patient factors (age, sex) and tumor factors (location at upper esophagus, involvement >3/4 esophageal circumference), which might influence the ESD grade of difficulty, were compared in TABLE 1. None of the factors were different between the two periods. In period T1, the mean tumor size, the mean procedure time, the en-bloc resection rate and the complete resection rate were: 34.1 mm, 111.8 min, 93.8% (46/49) and 79.5% (39/49) respectively (TABLE 2). While in T2 period, those features were 32.7 mm, 103.6 min, 97.9% (48/49) and 85.7% (42/49) respectively. There was a significant difference about mean procedure time between T1 and T2 with a statistically significant decrease over time (*P*=0.004) (FIGURE 2). Considering the entire cohort of 98 patients, the overall mean procedure time, mean tumor size, en-bloc resection rate and complete resection (R0) rate were: 109.3 min (SD±49.0 min), 33.8 mm (SD±16.2 mm) (*P*=0.234), 95.9% (94/98) (*P*=0.307) and 80.6% (79/98) (*P*=0.424) respectively. The curative resection rate based on the criteria proposed by the Japanese guideline from 2020 was 65.3% (32/49) for the T1 period and 71.4% (35/49) for the T2 period (*P*=0.258). The overall curative resection rate for the entire cohort was 68.4%.

TABLE 1. Patients and lesions characteristics.

	First period (n=49)	Second period (n=49)	*P*-value
Patient factors			
Age (years)	64 (37–86)	61.6 (32–82)	0.142
Sex (male/female)	31/9	25/14	0.132
Tumor factors			
Location at upper esophagus	5 (10.2%)	12 (24.4%)	0.062
Involving >3/4 circumference	11 (22.4%)	16 (32.6%)	0.258

TABLE 2. Outcomes during the learning curve.

	First period (n=49)	Second period (n=49)	*P*-value
Tumor size (mm)	34.1 (10–100)	32.7 (12–60)	0.234
Mean procedure time (min.)	111.8 (40–230)	103.6 (20–240)	0.004
En bloc resection	46 (93.8%)	48 (97.9%)	0.307
Complete (R0 resection)	39 (79.5%)	42 (85.7%)	0.424
Curative resection	32 (65.3%)	35 (71.4%)	0.258
Complications			
Perforation	2 (4%)	1 (2%)	0.558
Bleeding	1 (2%)	0 (0%)	0.315

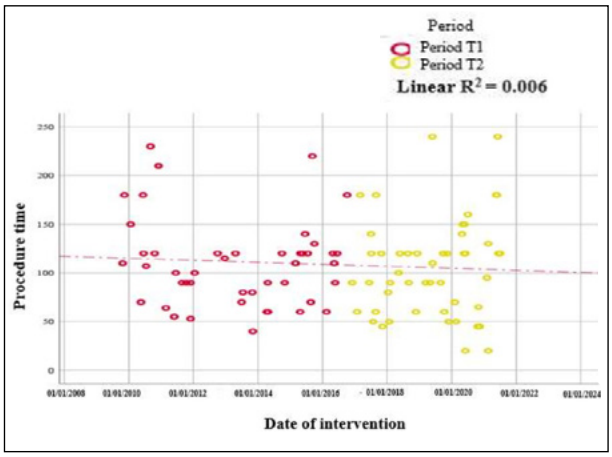

FIGURE 2. Procedure time learning curve.

A total of four adverse events occured during the study period. During the T1, there were two cases of perforation and one case of bleeding (TABLE 2). During the T2, there was a single case of perforation, suggesting a decrease in the complication rate in the second period, without being statistically significant difference though. All adverse events were successfully managed endoscopically by thermal coagulation and clips closure (mortality rate: 0%). In addition, evidence over time showed three cases of esophageal stricture (non-operator-dependent complications) which had all resolved with balloon dilation.

Among cases without en bloc and/or R0 resections (17 cases): 6 (35.2%) cases was technically complicated or difficult at which involvement was ≥¾ of the esophageal circumference (T1: 2 cases; T2: 4 cases). Likewise 3 (17.6%) cases had tumor location in the upper third of the esophagus (T1: 1 cases; T2: 2 cases) as the difficulty factor for esophageal ESD. In addition, among the cases without R0 resection: 13 (76.4%) cases showed lateral margin involvement (HM+) and 4 (23.5%) cases showed deep margin involvement (VM+). Among the four cases without en bloc resection (23.5%), 3 (75%) cases occurred during the T1 period and 2 (50%) cases had involvement ≥¾ of the esophageal circumference as the complicating factor. The seventeen cases without en bloc and/or R0 resections are listed in TABLE 3. None underwent completely circumferential ESD in either group.

Finally, among non-curative cases with en bloc and/or R0 resections (14 cases): 11 (78.5%) cases presented neoplastic invasion to deep submucosa (SM2) (T1: 5 cases, T2: 6 cases), 2 (14.2%) cases presented vascular/lymphatic invasion (T1: 0 cases; T2: 2 cases) and 1 (7.1%) case demonstrated signet ring cells on histology (T1:1 case, T2: 0 cases). Likewise, in this group of patients, in the T1 period, difficulty factors for ESD are: two cases with involvement ≥¾ of the esophageal circumference and one case with location in the upper third of the eso-

TABLE 3. List of non-curative cases without en bloc and/or R0 resections.

List of cases	Criteria of Incomplete and Piecemeal resection	Management plan	Possible factors for difficult ESD	Period
Case 3	SCC with compromise of lateral margins (converted to piecemeal)	Follow-up endoscopy	-	T1
Case 5	Adenocarcinoma with compromise of lateral margins + compromised deep margin	Follow-up endoscopy	-	T1
Case 6	SCC undifferentiated with compromise of lateral margins (converted to piecemeal)	Follow-up endoscopy	-	T1
Case 8	SCC with compromise of lateral margins	Follow-up endoscopy	Location at upper esophagus	T1
Case 12	Adenocarcinoma with SM2 invasion (1500 µ) + compromise of deep margin + compromise of lateral margins	Esophagectomy	-	T1
Case 23	SCC with compromise of lateral margins	Chemoradiotherapy	-	T1
Case 24	SCC with compromise of lateral margins	Follow-up endoscopy	-	T1
Case 40	SCC with compromise of lateral margins	Follow-up endoscopy	Tumor >3/4 circumference	T1
Case 42	Adenocarcinoma with SM2 invasion + lymphatic/ vascular invasión + compromised deep margin + compromise of lateral margins	Chemoradiotherapy	-	T1
Case 49	SCC with compromise of lateral margins (converted to piecemeal)	Follow-up endoscopy	Tumor >3/4 circumference	T1
Case 52	HGD with compromise of lateral margins	Follow-up endoscopy	Location at upper esophagus	T2
Case 58	HGD with compromise of lateral margins	Follow-up endoscopy	Tumor >3/4 circumference	T2
Case 59	SCC with compromise of lateral margins	Follow-up endoscopy	Tumor >3/4 circumference	T2
Case 70	SCC undifferentiated with SM2 invasion + compromise of lateral margins	Esophagectomy	Tumor >3/4 circumference	T2
Case 72	SCC with compromise of lateral margins (converted to piecemeal)	Chemoradiotherapy	Tumor >3/4 circumference	T2
Case 88	SCC with SM2 invasion + compromise of deep margin	Esophagectomy	-	T2
Case 93	HGD with compromise of lateral margins	Chemoradiotherapy	Location at upper esophagus	T2

ESD: endoscopic submucosal dissection; SCC: squamous cell carcinoma; HGD: high-grade dysplasia; SM: submucosa; T1: first period; T2: second period.

phagus. For the T2 period, it was noted that 4 cases had involvement ≥¾ of the esophageal circumference and 1 case with location in the upper third of the esophagus. The fourteen cases with non-curative resection despite en bloc and/or R0 resections are listed in TABLE 4. FIGURES 3 and 4 are illustrative of T1 and T2 periods respectively and demonstrates that the quality of ESD improved over time with less coagulation artifacts and muscle propria (MP) layer damage despite the larger size of the neoplastic lesion in the second period.

DISCUSSION

The analysis of the ESD learning curve is an issue of high clinical relevance and reflects the acquisition of knowledge and technical skills of a challenging therapeutic procedure that currently is considered the first treatment option in the eradication of superficial neoplasms of the gastrointestinal tract[6-8]. Esophageal ESD dissemination in the West is still limited and ongoing, due to the technical complexity required for its optimal execution as well as to the lack of

TABLE 4. List of non-curative cases with en bloc and/or R0 resections.

List of cases	Criteria for non-curative resection	Management plan	Possible factors for difficult ESD	Period
Case 17	HGD with signet ring cells	Follow-up endoscopy	-	T1
Case 28	SCC with SM2 invasion (1200 µm) + lymphatic/vascular invasión.	Follow-up endoscopy	Location at upper esophagus	T1
Case 30	SCC with SM2 invasion	Chemoradiotherapy	-	T1
Case 35	SCC with SM2 invasion (760 µm) + lymphatic/vascular invasión.	Follow-up endoscopy	-	T1
Case 39	SCC with SM2 invasion (700 µm)	Follow-up endoscopy	Tumor >3/4 circumference	T1
Case 43	SCC with SM2 invasion (630 µm)	Follow-up endoscopy	Tumor >3/4 circumference	T1
Case 54	SCC with SM2 invasion (280 µm)	Chemoradiotherapy	Tumor >3/4 circumference	T2
Case 71	SCC with SM2 invasion (600 µm)	Chemoradiotherapy	-	T2
Case 73	SCC with SM2 invasion (450 µm)	Chemoradiotherapy	-	T2
Case 74	SCC with lymphatic/vascular invasión	Chemoradiotherapy	-	T2
Case 78	SCC undifferentiated with lymphatic/vascular invasión	Chemoradiotherapy	-	T2
Case 85	SCC with SM2 invasion (1000 µm) + lymphatic/vascular invasión.	Follow-up endoscopy	Tumor >3/4 circumference	T2
Case 87	SCC with SM2 invasion (1100 µm) + lymphatic/vascular invasión.	Follow-up endoscopy	Tumor >3/4 circumference	T2
Case 92	SCC with SM2 invasion (1200 µm)	Chemoradiotherapy	Tumor >3/4 circumference + Location at upper esophagus	T2

ESD: endoscopic submucosal dissection; SCC: squamous cell carcinoma; HGD: high-grade dysplasia; SM: submucosa; T1: first period; T2: second period.

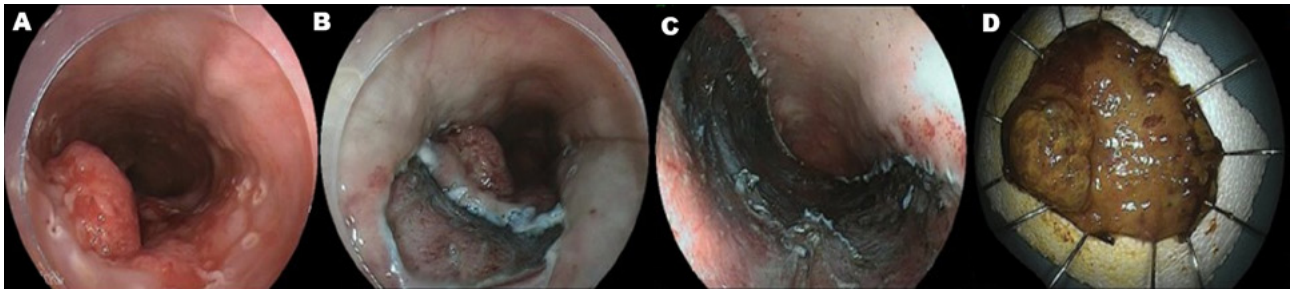

FIGURE 3. An illustrative case of T1 period (patient 20). A) neoplastic superficial tumor with protuded component. B) ESD was started by oral incision followed by tunneling method. C) En-bloc resection was achieved but excessive coagulation and damage of MP layer is evident. Transient pneumomediastinum and subcutaneous emphysema was noted on postoperative period with resolution in 24 hours. D) Specimen fixed for histological assessment which revealed squamous cell cancer with M3 invasion and R0 resection.

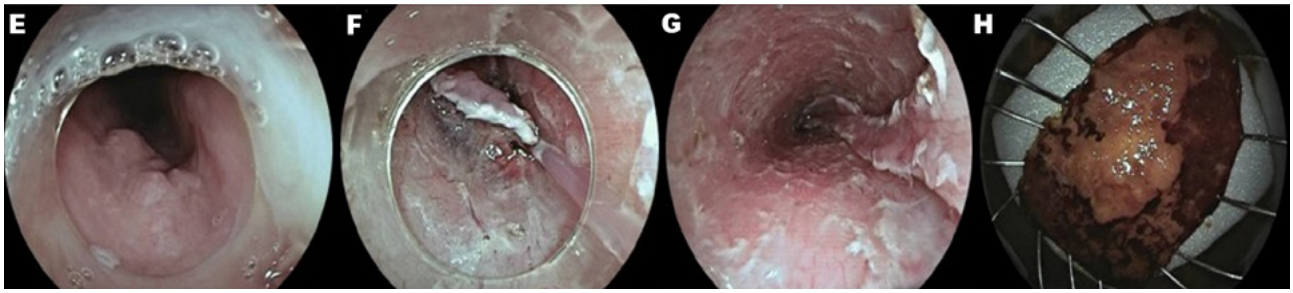

FIGURE 4. An illustrative case of T2 period (patient 90). A) Neoplastic flat-elevated lesion with protruded component. B) Circumferential incision was carried out followed by traction method with clip-line. C) Tumor was removed en-bloc. Extensive defect affecting over 90% of the circumference and about 9 cm in lenght. Note that MP layer is intact and no excessive burn is observed. D) Specimen fixed for histology which revealed squamous cell carcinoma with SM2 invasion up to 1200 micrometers with free radial and vertical margins (R0 resection).

training centers. This study, to our knowledge, is the first dedicated to analyze and describe the learning curve effect in the development and implementation of esophageal ESD in a Latin-American center, performed by a single operator after training in specialized centers in Japan.

The majority of studies, mainly asians, that analyze the learning curve in ESD are focused on the stomach and rectosigmoid area, since these segments of the gastrointestinal tract are considered by different authors as the most suitable areas to start the ESD experience[9-12]. Updated scientific evidence on the analysis of the learning curve in esophageal ESD is very scarce, particularly in the West[13-15]. An interesting retrospective study from Taiwan in which they included 33 consecutive superficial esophageal neoplasms which were divided into three study periods (T1: n=10; T2: n=10; T3: n=13)[16]. All of them underwent ESD by a single novice endoscopist, demonstrating statistically significant improvements over time in the rates of en bloc and complete resection and in the time of the procedure (min/cm), but not in the rate of complications. They also determined that a novice endoscopist should perform at least 30 esophageal ESD to achieve early mastery of this technique. Our study analyzed more cases (98 cases) than the study from Taiwan and the improvement of procedure time was achieved after 49 cases of it. Our study was an initial study in a large cohort of esophageal ESD of Latin American origin and by a Western endoscopist. Another Western study from Mexico in which an attempt was made to establish the first advances in the development of a formal training program in esophageal ESD following the traditional Asian scheme utilized 10 canine models to carry out ESD of an artificial lesion at the esophagus, and evaluated the resected specimen by pathological anatomy, showing a circumferential en bloc resection rate without any complications including perforation in the last three (out of 10) animal models[17]. We also advocate these trainings using animal models before clinical practice and our single operator had also experienced a training using animal models in Japan. According to these results, the case number and the way for learning esophageal ESD varies to the area according to their situation. It is further compounded by the limited number of previous studies concerning this theme. Further analyses should be performed to clarify it.

One of the main indicators that shows a successful achievement of the learning curve in esophageal ESD is the improvement in the curative and R0 resection rate over time. We noted a trend towards an improvement in this parameters throughout our study, without reaching statistically signifcant difference probably as a result of the small sample size of our casuistry, as well as due to the fact that in the second period, the cases admited for ESD were likely more complex and challenging. It is noteworthy that in the second period of our study, we experienced more cases with criteria of non-curability related to the oncologic progression of the tumor (SM2 invasion, vascular/lymphatic invasion and poor cell differentiation). Our results in TABLE 4 show how oncologic progression due to late detection and the limited availability image-enhanced endoscopic technology, mainly in Latin America, are determining factors that impairs the curative resection rate of superficial esophageal neoplasms even when en bloc and complete endoscopic resection is achieved. Therefore, it is necessary to implement progra-

ms for early detection of esophageal neoplasms, as well as the creation of Latin American training centers to optimize the learning curve in the use of image--enhanced endoscopy techniques, in order to determine the real curative resection rate of ESD in the eradication of this type of lesions.

Another important aspect in the development of the learning curve in ESD are the endoscopic factors that predict the increase of technical difficulty at which most studies suggest that tumor size and the presence of submucosal fibrosis are the main predictive factors that could lengthen the learning curve[18-20]. A study enrolled 44 patients with sessile and flat lesions located in the rectum and sigmoid colon, all of whom underwent ESD in order to determine the main predictive factors of technical difficulty. They defined a technically difficult ESD when the procedure time crosses over 120 minutes and/or generated piecemeal resection, demonstrating a direct correlation between tumor size and procedure time (P<0.0001). The authors also showed evidence that severe submucosal fibrosis is associated with cases of piecemeal ESD (P=0.0074) and perforation (P=0.0012)[21]. There are currently no studies that evaluate these predictive factors in esophageal ESD, however in our casuistry it was possible to identify that involvement of ≥¾ esophageal circumference and the location in the upper third of the esophagus were the main factors associated with increased technical difficulty and long procedure time.

The main limitation of our study is that the description of the learning curve was based on the experience of a single endoscopist; however, the casuistry we present is the largest in Latin America, being elaborated prospectively in a consecutive manner and without patient selection in order to reflect the variation of efficacy, efficiency and safety in esophageal ESD from the first to the last case.

CONCLUSION

In conclusion, the learning curve in esophageal ESD may be overcomed by a Western endoscopist after adequate training in referral centers, preferably initially utilising animal models before real-life training, which shows a profile of improvement over time in efficacy, safety and efficiency similar to those observed in Asian studies.

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Authors' contribution

Aliaga Ramos J , Yoshida N, Abdul Rani R, Arantes VN: conceptualization, data collection, search execution, statistical, text writing, investigation, methodology, supervision, validation, análisis, writing-original draft, writing-review and editing.

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Aliaga Ramos J , Yoshida N, Abdul Rani R, Arantes VN. Curva de aprendizagem de dissecção endoscópica de submucosa por endoscopistas ocidentais treinados no Japão: Experiência na América Latina. Arq Gastroenterol. 2023;60(2):208-16.

RESUMO – Contexto – A dissecção endoscópica da submucosa do esôfago (DSEE) é um procedimento complexo, cujo treinamento está disponível principalmente no Japão. Há uma escassez de dados sobre a curva de aprendizado para se capacitar na realização da DSEE por endoscopistas ocidentais. **Objetivo** – Este estudo teve como objetivo avaliar o efeito da curva de aprendizado no resultado clínico dos pacientes submetidos a DSEE. **Métodos** – Trata-se de um estudo observacional retrospectivo. Foram incluídos pacientes submetidos a DSEE no período de 2009 a 2021. A análise foi dividida em dois períodos; T1: caso 1 a 49 e T2: caso 50 a 98. Os seguintes parâmetros foram analisados para cada grupo: características clínicas dos pacientes e dos tumores de esôfago, taxas de ressecção em bloco, completa e curativa, duração do procedimento e taxa de eventos adversos. **Resultados** – Noventa e oito procedimentos de DSEE foram realizados. O tempo médio do procedimento foi de 111,8 min e 103,6 min nos períodos T1 e T2, respectivamente (P=0,004). A taxa de ressecção em bloco foi de 93,8% e 97,9% nos períodos T1 e T2, respectivamente (P=0,307). A taxa de ressecção completa foi de 79,5% e 85,7% nos períodos T1 e T2, respectivamente (P=0,424). A taxa de ressecção curativa foi de 65,3% e 71,4% para T1 e T2, respectivamente (P=0,258). Quatro pacientes tiveram complicações; três durante o período T1 e um durante o período T2. Taxa de mortalidade geral: 0%. **Conclusão** – A DSEE pode ser realizada de forma eficaz e segura por um endoscopista ocidental adequadamente treinado.

Palavras-chave – Dissecção endoscópica da submucosa; curva de aprendizado; neoplasias superficiais do esôfago.

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