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Clinical Pathway for Surgery with the WALANT Technique Outside the Major Ambulatory Surgery Standard

Via clínica para cirugía mediante técnica WALANT fuera del estándar de cirugía mayor ambulatoria

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Abstract

Objective To develop and assess after one year a clinical pathway for hand surgery procedures using the wide awake, local anesthesia, no tourniquet (WALANT) technique.

Materials and Methods We planned and executed clinical pathway for non-complex hand surgery patients and performed a comparative cost assessment between the operating room with all the necessary staff and local surgery with the WALANT technique.

The rate of surgical cancellations and the number of patients operated on were calculated as indicators of quality. The mean length of hospital stay was compared between patients operated on in an ordinary fashion and in the WALANT operating room. We assessed the reduction in the surgical waiting list for carpal tunnel syndrome and trigger finger.

Results Direct costs were 48.9% lower with the WALANT technique. We evaluated 254 patients in 2020 and 339 in 2021. The rate of cancellations was of 5.1% (0.4% for medical reasons). The length of hospital stay was significantly shorter for patients in the WALANT group ($z = -8.743$; $p = 0.000$). The decrease in the surgical list was of 113 days.

Conclusions Surgery with the WALANT technique suited for this clinical pathway enables the performance of interventions in patients with less resources, which decreases the direct costs and unburdens the Outpatient Surgery Units.

Keywords
- local anesthesia
- WALANT
- clinical pathway
- major outpatient surgery

Resumen

Objetivo Desarrollar y valorar al año una vía clínica para procedimientos de cirugía de mano utilizando anestesia local sin torniquete y con el paciente despierto, denominada técnica WALANT (*wide awake, local anesthesia, no tourniquet*, en inglés).

Materiales y Métodos Se planificó y ejecutó una vía clínica para pacientes de cirugía de mano no compleja, y se realizó una comparativa de costes entre dotación completa del quirófano y cirugía local con la técnica WALANT.

Como indicadores de la calidad, se calculó la tasa de suspensiones quirúrgicas y el número de pacientes intervenidos. Se comparó el tiempo medio de estancia

Palabras clave
- anestesia local
- WALANT
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hospitalaria entre los pacientes intervenidos de forma ordinaria y en el quirófano WALANT. Se valoró la reducción en la lista de espera quirúrgica en síndrome del túnel del carpo y dedo en gatillo.

Resultados Los gastos directos fueron un 48,9% menores en el procedimiento WALANT. Se valoraron 254 pacientes en 2020 y 339 en 2021. La tasa de suspensión fue del 5,1% (0,4% por motivos médicos). El tiempo de estancia en el hospital fue significativamente menor para los pacientes del grupo WALANT ($z = -8{,}743$; $p = 0{,}000$). La disminución en la lista quirúrgica fue de 113 días.

Conclusiones La cirugía mediante la técnica WALANT adecuada a esta vía clínica permite la intervención de pacientes con menos recursos, lo que disminuye los gastos directos y alivia las unidades de Cirugía Ambulatoria.

Introduction

Since the establishment of the centers dedicated to Major Ambulatory Surgery (MAS) in Spain in the mid-1990s, this perception of medicine has been establishing itself as an effective, valid, safe, and cost-effective alternative for the treatment of surgical pathologies that can be performed without hospital admission, always meeting the basic requirements of safety, quality, and efficacy for the patient.[1] Proof of this is that the rate of ambulatory surgery in Spain was of 47.2%[2] throughout the year 2019 for surgical procedures, and of 43%[3] for procedures included in the portfolio of the Orthopedic Surgery Service.

The importance of Major Ambulatory Surgery Centers (MASCs) in general terms is determined by their cost-effectiveness, the availability of hospital beds for serious procedures, and the optimization of increasingly scarce health resources. But what we call MAS is a set of dynamic processes in which future prospects[4] include the inclusion of more complex procedures, complex diagnostic-surgical procedures, or interventional radiology. All of this may gradually lead to a return to the problem that gave rise to the creation and development of the MASCs: the saturation and collapse of the system under the current conditions. That is to say, the inclusion of more and more MAS procedures in the MASCs can cause the same situation experienced at the end of the 1980s, when the health system collapsed until this new approach to treatment without hospital admission was conceived. That is why new proposals and alternatives have to be progressively championed to update and refresh this management model.

Regarding Orthopedic Surgery, and more specifically, hand pathologies, today it is considered that more than 75% of procedures can be performed on an outpatient basis.[5] Under this assumption, the adoption of new forms of anesthesia, such as through the wide awake, local anesthesia, no tourniquet (WALANT) technique, have enabled the development, in the United States, Canada and the United Kingdom, of the so-called "minor procedure room surgery",[6] in which the surgeon acts as such and as an anesthesiologist and the patient is discharged immediately after the surgical process, as no type of sedation is administered. This approach for non-complex hand surgery is already being adopted in some centers in Spain[7] without a well-defined structure, and this type of anesthesia is used as a philosophy rather than as a tool.

In our country, this way of perceiving the surgical process is not very popular due to technical and administrative issues, although the reluctance to have an anesthesiologist available in an operating room may be the main handicap to overcome today. On the other hand, the inclusion of certain procedures in groups I and II of the Davis classification of patients likely to be treated in the MASCs[8] in fewer than 30 minutes, and with absence of bleeding, complete maintenance of the patient's state of consciousness throughout the process, and absence of vomiting and pain enable the immediate discharge of the subject, and the process can be thought of more as a visit to the dentist[9] than a surgical intervention.

Even so, the objective of the present work is to develop a clinical pathway in our center for patients undergoing non-complex hand surgery procedures, with the resources available at our hospital, in order to unburden the usual MASCs, according to current standards and legislation in force. For this, a previous assessment of the implementation of the WALANT type of anesthesia in the center and a cost study were carried out. Subsequently, the results of the implementation of the clinical pathway throughout 2021 are provided, based on the results of the length of hospital stay time and reduction in the surgical waiting list.

Materials and methods

Study of direct costs

Data on the costs related to materials was provided by the hospital in 2019. Regarding human resources, we used data provided by the public system in the corresponding Autonomous Community according to an official publication.[10] Structural expenses were not included.

For the calculation of the necessary personnel for the surgical interventions, two assumptions were established: A) full staff,[10] with two surgeons, an anesthetist, two nurses, an

assistant, and a surgical orderly, and B) local or WALANT operating room equipped with only one surgeon and one nurse and, in our case, an assistant, according to the standards of minor surgery.[11]

Establishing a clinical pathway

We start from the basis of a group 3 area hospital that cares for a population of 170,000 inhabitants with an integrated type-I MASC, that is, with an organization dependent on surgical services, a person in charge or a coordinator, and a structure totally shared with central hospital resources but with a different admission service.[12] The surgeries corresponding to the MASC processes are scheduled in undifferentiated operating rooms or together with pathologies that require admission, regardless of their type. There is no surgical area or specific operating theaters for patients without admission. The only difference is in the hospital entry and exit protocols.

Initial phase

As a preliminary step for the development of the clinical pathway, a randomized controlled clinical trial with a parallel design of two arms in treatment was carried out in patients diagnosed with carpal tunnel syndrome (CTS) to assess the pain of the anesthetic act. All patients signed the corresponding informed consent, and the study was approved by the institutional Ethics Committee under code CEIm: 89/19. Consecutive patients with a clinical and electromyographic diagnosis of CTS for surgical treatment were included. Two groups of patients were included: group A received WALANT-type anesthesia (lidocaine 1% 10 mL + epinephrine 1 mg in order to achieve a dilution of 1:100,000 + 1 mL of bicarbonate 1 M),[13,14] without sedation, and group B, local anesthesia (mepivacaine 2% 10 mL) and sedation by an anesthetist (at his discretion). All patients underwent the same surgical technique. The evaluation of the results was carried out through a questionnaire applied to each patient on the day of surgery and two weeks later to assess the type of anesthesia. Demographic data and satisfaction and discomfort with the anesthetic act during the procedure were analyzed using a dichotomous variable (-yes/no). Pain assessment during the administration of local anesthesia and during surgery was performed using the Numeric Rating Scale (NRS), with values ranging from 1 to 10. A first analysis was performed with a cut-off point of half of the patients. We decided to interrupt the clinical study at this point based on a futility-stopping rule, seeing that the possibility of obtaining a value of $p < 0.05$ at the end of the study was very low,[15] that is, that no difference was expected in terms of the pain perceived by the patients in any of the groups. We analyzed 26 patients from group A and 21 patients from group B, in which there were 4 losses. There were no statistically significant differences between the 2 types of anesthesia applied to the patients; the average pain during the administration of anesthesia was of 2 points ($p = 0.953$), and, during the surgical procedure, it was of only 1 point in both groups ($p = 0.273$). Neither were there differences regarding the discomfort felt during surgery ($p = 0.630$) and the satisfaction with the procedure ($p = 0.395$).

Clinical pathway

Once the results of this previous study had been analyzed, the clinical pathway as such was developed, located in an operating room called WALANT Surgery, outside the general surgical environment in terms of its location, but with the same administrative circuit as MAS patients. Only processes related to hand pathology were included, with a previous rate of outpatient attendances of 100% at our center (►**Table 1**) and with a type-A anesthetic classification by the Spanish Society of Anesthesia and Resuscitation (Sociedad Española de Anestesia y Reanimación, SEDAR, in Spanish)[16] carried out by the surgeon in charge of the patient.[17] All patients belonged to diagnosis-related groups (DRGs) 6, 228, or 229.

For the evaluation of the length of hospital stay, the following time variables measured in minutes were evaluated:

- Procedure time: from the patients' entry into the operating room until their exit. In the WALANT procedure, it includes the entrance into the local surgery operating room, the administration of anesthesia, the waiting time for the anesthetic and epinephrine to take effect, and the operative time. In the conventional operating room, it includes the time of departure from the Ambulatory Surgery Unit (ASU), arrival at the operating room,

Table 1 Diagnoses included in the study

Diagnosis	Cases*
Olecranon bursitis	1
Foreign body in the soft tissues of the hand	2
Trigger finger	51
Median nerve decompression other locations (lacertus fibrosus)	6
Epicondylitis	1
Fasciectomy	10
Fasciotomy	2
Fibroma and other benign tumors	4
Articular ganglion	11
Tendon sheath ganglions	5
Ulnar nerve release	1
Epidermoid cyst	2
Extensor sheath cyst	1
Amputation stump regularization	1
Carpal tunnel syndrome	158
Radial styloid tenosynovitis	5
Giant cell tumor of the tendon sheath	3
Other	2
TOTAL	**266**

Note: * There are fewer diagnoses than patients, since several patients had to undergo several procedures.

anesthesia, procedure, and departure from the operating room.
- Length of hospital stay: the amount of time from the moment the patient presents their Population Information System (Sistema de Información Poblacional, SIP, in Spanish) health card at the reception desk until they are discharged from the system once the surgery is finished.
- In patients with procedures in the conventional operating room, the following variables are also included to perform a descriptive analysis:
  - Postoperative time: the time that the patient spends in the Postanesthesia Care Unit I (PACU I). It is included in the length of hospital stay of patients undergoing regular surgery.
  - Time in the PACU: the time the patient spends in the PACU II. It is included in the length of hospital stay of patients undergoing regular surgery.

The assessment of the decrease in time in the surgical waiting list (SWL) was performed retrospectively and manually, and calculated by reviewing the clinical history in a merely descriptive way. Only the most prevalent processes in the WALANT operating room (CTS and trigger finger) were included and compared with the 2019 data, when the clinical pathway analyzed in the present study had not been established. The calculation was made in days, from the date on which the patient underwent surgery minus the date on which the patient was included in the SWL. Data from 2021 were included in this section.

The rate of surgical cancellations was calculated as an indicator of the quality of the process.[8]

Statistical analysis

Descriptive statistics were used to summarize patient demographics, procedures, and diagnoses. The categorical variables are presented as counts. The continuous variables with highly-skewed distributions are presented as medians and interquartile ranges. The continuous variables with normal distributions are presented as means and standard deviations (SDs). The categorical variables were evaluated using the Chi-squared test or the Fisher exact test where applicable. The continuous variables were assessed using two-tailed Student *t*-tests or Mann-Whitney U-tests where appropriate, based on distribution. The ordinal variables were evaluated using Kruskal-Wallis tests.

The assessment of the length of hospital stay and operative time followed a non-normal distribution (Kolmogorov-Smirnov test), so non-parametric tests were used to perform the statistical analysis (Mann-Whitney U test).

Results

Study of the direct costs

The study of the direct costs shows direct expenses amounting to €494.05 for the process in the conventional operating room, and €241.79 in the case of a WALANT operating room, which represents a difference of 48.9% (►**Table 2**).

Establishing a clinical pathway

In **table 3**, we can see the detail of the clinical pathway and its comparison with the usual procedure. The adaptation of certain guidelines, such as the use of a monitor or the placement of a peripheral catheter for all patients, was suggested by Nursing to solve possible issues faced by the patients at the beginning of the use of this circuit; both measures are quick procedures that safeguards us in the event of possible complications, although currently, given the safety of the procedures, they have been discontinued.

The absence of the need to perform preanesthesia, passing through PACUs I and II, and the immediate discharge of the patient are the main considerations in this clinical pathway.

This clinical pathway was implemented in our hospital in March 2020. With the interruptions due to the coronavirus disease 2019 (COVID-19) pandemic, the operating room worked for around 5 months, in which a total of 254 patients were operated on (8 per surgical session). The rate of cancellations was of 5.1%, that is, 13 patients, 12 of whom did not attend on the day of the surgery (many of them due to fears related to the COVID pandemic) and only 1 patient (0.4% of the total) was rejected for medical reasons (anxiety crisis) once they arrived at the operating room. No patient required hospitalization after the procedure or stay in the PACU. A total of 1.5% (4) of the patients went to the emergency room due to issues related to the surgical wound (suture dehiscence), which were resolved without any incedence. There were no cases of superficial or deep infection.

Regarding the different times measured in the hospital by the patients, the results followed a non-normal distribution (►**Table 4**). Assuming as the null hypothesis that the surgical intervention time in the conventional surgery group is equal to that of the WALANT group, we can indicate that there was a statistically significant difference regarding the intervention time ($z = 3.470$; $p = 0.0005$); this difference is related to the time, of approximately 30 minutes,[18] that we have to wait for the adrenaline to have a vasoconstrictor effect, so the surgical times are shorter in the conventional surgery group despite accounting for anesthesia and sedation (the difference between the medians was of 67.98 minutes for the WALANT group and of 34.02 minutes for the conventional group, that is, a difference of 33.96 minutes). Regarding the length of hospital stay, assuming as the null hypothesis that the length of hospital stay for the conventional surgery group is equal to that of the WALANT group, we also observed statistically significant results, this time in favor of the WALANT group ($z = -8.743$; $p = 0.000$), since we subtracted the times in the PACU I (median = 109.98 minutes) and PACU II (median = 51 minutes) for patients in the WALANT group.

The surgical delay time, or the time the patient spent in the SWL, varied from the 199 days of wait for a patient to undergo surgery for CTS or trigger finger in 2019 to 86 days on average in 2021, which, in December of that same year, was of 64.45 days, that is, a reduction of 134 days two years after the implementation of the clinical pathway. ►**Figure 1** shows how the trend is progressive since the implementation of the WALANT operating room, while the trend of the

Table 2 Expenses corresponding to a standard median nerve neurolysis intervention at the level of the wrist (carpal tunnel syndrome) in each of the regimens analyzed in the study

	MASC	WALANT
For both of them		
First hospital consultation	56.03	56.03
Outpatient cures x 2	51.42	51.42
MAS-related		
Medication: local anesthesia[#] + sedation	3.26	0.00
Preoperative	66.02	0.00
Anesthesia consultation	59.02	0.00
Admission MAS	121.32	0.00
WALANT-related		
Anesthetist[#]	0.00	0.72
Admission to Minor Surgery Regimen	0.00	77.28
Total (except expenses with personnel)	**357.07**	**185.45**
Surgeon (27.04€)[*]	54.08	27.04
Anesthetist (27.04€)[*]	27.04	0.00
Nursing (17.99€)[*]	35.98	17.99
Assistant (11.31)[*]	11.31	11.31
Surgical orderly (8.57)[*]	8.57	0.00
Expenses corresponding to *personnel*	**136.98**	**56.34**
Total expenditure for CTS surgery	**494.05**	**241.79**

Abbreviations: CTS, carpal tunnel syndrome; MAS, major ambulatory surgery; MASC, Major Ambulatory Surgery Center; WALANT, wide awake, local anesthesia, no tourniquet, performed in a minimal-impact operating room.
Notes: [#]Mepivacaine 1% is usually used in MAS cases. In the cases of the WALANT operating room, a price is established for a preparation of lidocaine + epinephrine at 1:100,000, to which 1 mL of 1 M bicarbonate is added.
[*]The data corresponding to the prices related to each of the admission regimens and consultations have been provided by the hospital's billing service. The data corresponding to the salary of each of the participants have been obtained from *Diario Oficial de la Generalitat Valenciana*, sec. 13.11.2019, 2019/10761, Nov 13, 2019, p. 48722-831, divided by 8, which are the procedures corresponding to each of the operating room sessions.

number of patients operated on over time is maintained with a minimal increase.

Discussion

Our results indicate that the administration of WALANT-type anesthesia is a procedure that does not affect the quality of the anesthesia provided to the patients. From an economic point of view, the implementation of this clinical pathway has led to more than evident savings in our health center, with a decrease of around 50% in costs per procedure. From the point of view of the resources used, the advantages are twofold: the allocation of resources such as anesthesiologists and nursing staff to other activities and the use of resources normally employed in surgeries performed in WALANT operating rooms for other purposes, such as major surgery patients.

The time allocated to surgery is influenced in the statistical study by the time that patients wait for the vasoconstrictor effect of adrenaline.[18] To minimize these delays, we have divided the patients into two groups of four patients per session, so that four patients undergo WALANT-type anesthesia and then are submitted to surgery. Regarding the length of hospital stay, we see how the lack of need to stay in recovery units significantly shortens the stay of patients for these processes, leaving these units available for more serious processes.

The present work aims to provide an alternative to today's overburdened MASCs. As a tool, WALANT-type anesthesia may be used as the first step towards a new perspective, a new way of perceiving surgery, in which the patient plays a true leading role, not only in the surgical act we ourselves perform as physicians, but also in the subsequent care at home, in which the patient must be involved.[5] In this type of intervention, one must bear in mind that interaction with the patient during the therapeutic act is fundamental, since they are conscious at all times, and our attitude will be a crucial part of the patient's satisfaction with the process. Processes as prevalent on our waiting lists as CTS can be eliminated from the usual MAS circuits, making way for processes that are more technically complex. Regarding infrastructure, in our opinion, the use of operating theaters with a regulated structure provides better alternatives than the performance of procedures in

Table 3 Clinical pathway to minimal-impact operating room versus conventional procedure at the MASC

	WALANT – minimal-impact operating room	Conventional MASC
Medical consultation	Anamnesis; Exploration; Treatment decision; Inclusion on the surgical waiting list; Signature of the Informed Consent; Explanation of the "visit to the dentist" procedure; Physical and psychological assessment; Patient instructions Social status assessment.	Anamnesis; Exploration; Treatment decision; Inclusion on the surgical waiting list; Signature of the Informed Consent; Explanation of the procedure
Preanesthesia	**Not performed**	**Nursing** Hemogram + Coagulation + Biochemistry ± Chest Rx; Comorbidities; Evaluation of physical and emotional conditions; Social criteria. **Anesthetist** Consultation for preoperative evaluation; Anesthesia informed consent.
Surgical admission	Independent of the circuit of hospitalized patients – **joint for the two types of processes**	
Adaptation Unit	The patient is placed on a chair. **Nursing** Heparinized peripheral catheter – (see text); Evaluation of the physical and emotional conditions; Allergies; Treatments; Hygiene control. **Nursing assistant** Changing upper body clothing; Supervision of washing for 3 minutes of the surgical field with soap with chlorhexidine; *After the administration of the anesthesia, the patient will wait in this same place, for 25-30 minutes, for the performance of the surgery.*	Stretchers-Bed; Peripheral catheter; Shared room – accompanied by a family member. **Nursing assistant** Shaving if applicable; Cleaning of the surgical field with soap with chlorhexidine. **Nursing** Communication with the patient; Allergies; Treatments; Hygiene control; Sedation (midazolam 2 mg IV); Antibiotic therapy per protocol (cefazolin IV) Fluid management (500 mL of saline).
Surgical field	**Nursing** Continuous communication with the patient *during the* ***entire*** *surgical process*; Monitoring; Specific checklist; Preparation of the medication: preloaded or dilution at the beginning of the treatment block; Preparation of surgical field and material in each of the surgeries.	**Nursing** Preparation of the anesthesia medication; Preparation of the surgical field; Sedated patient; Assistance to surgeon + anesthetist (2 nurses); Patient monitoring; Checklist (different from the one carried out in WALANT). **Surgeon** Surgical procedure; Ischemia.

(*Continued*)

Table 3 (*Continued*)

	WALANT – minimal-impact operating room	Conventional MASC
	Surgeon - **First stage:** o Administration of anesthesia; o Lidocaine + epinephrine at 1:100,000. - **Second stage (30-35 minutes later):** o Surgical procedure; o *No* sedation; o *No* ischemia.	**Anesthesia** Establishment of of constants; Anesthesia induction; Types of anesthesia (peripheral block, laryngeal mask, general anesthesia, combination of processes); If local anesthesia or peripheral block, sedation is usually added.
PACU I	**Not performed**	Postoperative recovery of the patient; Monitoring, constant control, bleeding control, pain assessment; Semi-Fowler position (30°); Discharge criteria with Aldrete score > 8.
PACU II	**Not performed**	Dressing control (bleeding); Fluid intake at 30 minutes if only local anesthesia; Pain assessment; Discharge criteria with Aldrete score > 9.
Discharge	***Immediately*** after surgical wound closure; Verification of the constants; Aldrete score modified by White > 12; Discharge report from Orthopedic Surgery and Traumatology.	Documents • Discharge from anesthesia; • Discharge from Orthopedic Surgery and Traumatology; • Nursing care plan.

Abbreviations: IV, intravenous; MASC, Major Ambulatory Surgery Center; PACU I, Postanesthesia Care Unit I; PACU II, Postanesthesia Care Unit II; Rx, radiograph; WALANT, wide awake, local anesthesia, no tourniquet, performed in a minimal-impact operating room.

Table 4 Results of the statistical analysis of the different times calculated for the length of stay of the patients

	WALANT group	Conventional surgery group	Total
N	235	349	584
Operative time			
Median	67.98	34.02	37.98
95% confidence interval	64.77–75.20	37.74–42.30	49.32–57.84
Interquartile range	69.00	18.00	41.75
Length of hospital stay			
Median	222.00	247.02	235.02
95% confidence interva	226.34–244.67	262.77–287.66	250.80–267.67
Interquartile range	85.02	133.02	115.79
Postoperative time (PACU I)*			
Median	N/A	109.98	N/A
Time in PACU II*			
Median	N/A	51.00	N/A

Abbreviations: N/A, data not available for the WALANT group; PACU I, Postanesthesia Care Unit I; PACU II, Postanesthesia Care Unit II; WALANT, wide awake, local anesthesia, no tourniquet, performed in a minimal-impact operating room.
Note: * Only applicable to the Conventional Surgery group.

clinics,[7] in our opinion, where patient safety measures are perhaps not the most appropriate.

The implementation of this system is other countries is not new. Although current Spanish legislation[19] does not allow us to establish high-resolution centers such as those in the United Kingdom,[20] we can adapt this type of action to our environment. In the United States, the establishment of specific clinical pathways for CTS surgery in outpatient centers with specific circuits led to a reduction between 31% and 52% in direct costs,[21,22] results similar to those described in the present study. Currently, our healthcare infrastructure does not enable us to create independent ambulatory surgery centers, but the adaptation of the available facilities has shown truly promising results.

Patient safety must always be our primary goal. Therefore, the decision to stop administering prophylactic antibiotic therapy[23,24] or performing surgeries outside the conventional operating room[6] are made based on a review of the current literature. The administration of this type of anesthesia is a safe and slightly painful procedure, as shown by the publications consulted, in which the pain scale has not shown significant differences from the normal procedure, and has consistently presented pain values below what is considered pathological[25] in more than 400 patients operated on for CTS.[7,26] Likewise, we want to point out that the choice of procedures deemed non-complex and frequent should not lead one to think that they are minor surgeries per se, since the technical complexity and the possible sequelae of a poorly-performed surgery are very disabling for the patients. This last point should also be considered for the implementation of the clinical pathway in private centers, since the diagnosis codified by the usual DRGs should remain the same, as well as staff wages, since only the physical location where the procedure is performed changes. The limitation that the absence of an anesthetist could entail is supported by numerous publications that demonstrate the safety of the anesthetic procedure with the WALANT technique.[7,26]

The clinical pathway developed in the present work constitutes one more step in the so-called fast track or express routes, in which the stay in the PACU is eliminated to reduce the patient's recovery time before discharge. Immediate discharge occurs safely after an assessment of the White[27] test with a score that indicates that the patient does not have any symptoms before discharge. Various assessment systems have been used prior to discharge,[28,29] but the adaptation of the White test[27] to the Aldrete test, which is the one commonly used in our MASC, has been the simplest step.

Regarding the postulates established by Lalonde regarding WALANT-type anesthesia, one of the main problems is the lack of phentolamine for the reversal of the effect of epinephrine,[30] whose sales were recently discontinued in Spain. The cases of problems with the administration of WALANT are anecdotal,[31] referred to as sporadic clinical cases. With the lack of phentolamine, the procedure could be performed with other drugs, such as subcutaneous verapamil or papaverine, although they have not been clinically tested for this use; however, the same thing happened with phentolamine until the publication of the work by Lalonde,[32] in which the administration of the reversal of WALANT was left at the hands of surgeons.

Regarding the economic impact of the process, there are numerous publications in English that support the cost-effectiveness of this system.[21,22] In Spain, Far-Riera et al.[7] considers that the savings per patient is of around €1,000 with the performance the procedures in an office within the hospital. Apart from the actual savings, the structural advantages are unquestionable, since only half of the human resources are required, and then ordinary operating rooms can be used for other types of surgeries.

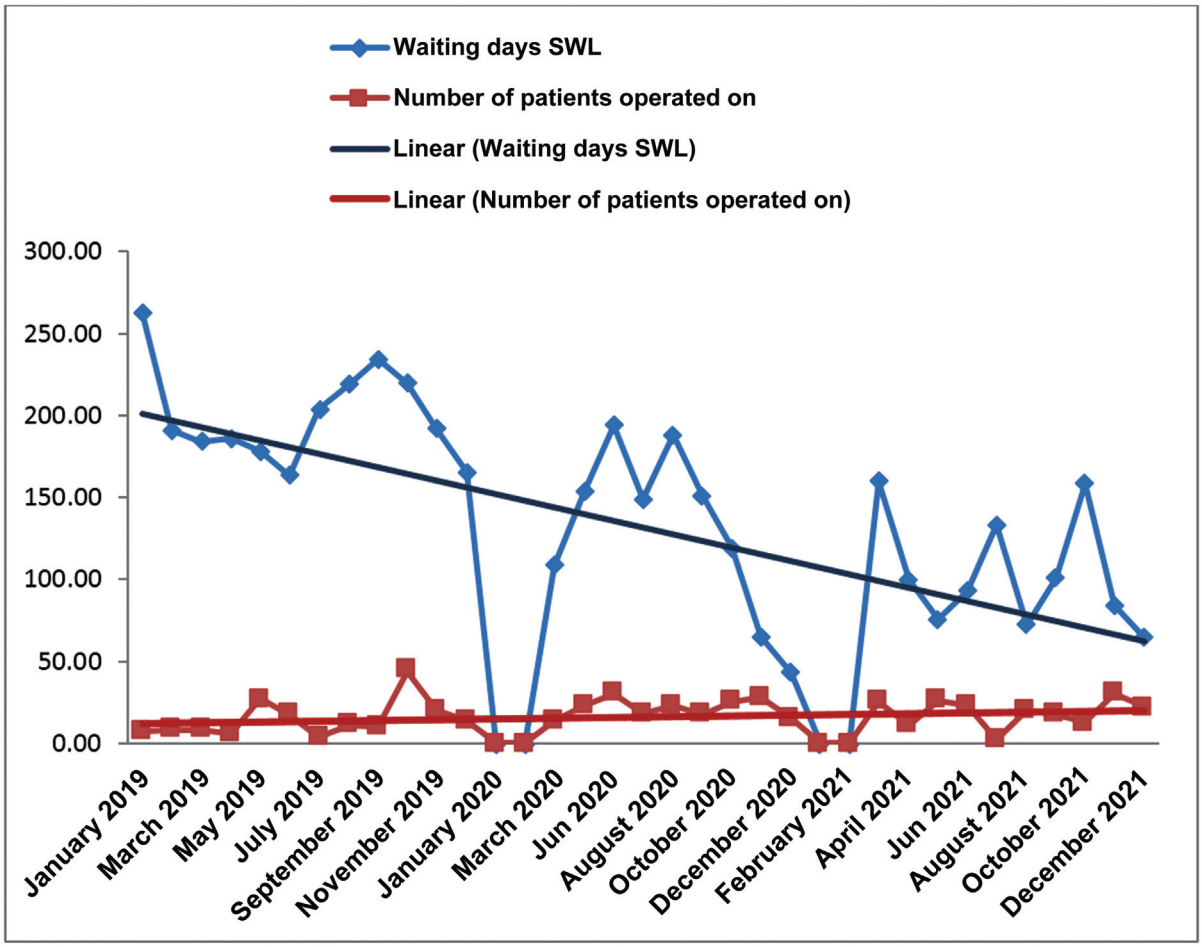

Fig. 1 Evolution of the time in the surgical waiting list for patients diagnosed with carpal tunnel syndrome and trigger finger. The trend lines show how the waiting time for patients progressively decreases over time, while the number of patients operated on maintains a minimal upward trend. The two valleys in the waiting list time correspond to the interruption of surgical activity due to the COVID pandemic.

Like any clinical pathway, the benefits it presents are unquestionable, but the process must be reviewed over time. The inclusion of new types of procedures, the improvement of organizational aspects, the development of specific brochures for patients, or the administration of specific quality questionnaires are probably the objectives of the first revision that we will carry out when the unit has been working for a certain time without the disruption caused by the coronavirus epidemic. Despite this circumstance, the creation of this type of unit with independent circuits has shown that it is useful in times of a pandemic, in which, due to different circumstances, ordinary operating rooms have to be temporarily closed over time.[33]

The clinical pathway established in the present article meets all the requirements from the point of view of Ambulatory Surgery,[5] of the Spanish legislation related to the MAS,[8,17] and of patient safety and consent,[19] so its implementation in different centers is feasible, and it is up to us to make it real and viable, taking into account only the variations in the different types of center and geographical locations.

Conflict of Interests
The authors have no conflict of interests to declare.

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