Original article

Early clinical outcomes, patient experience, and satisfaction after open trigger finger release under WALANT

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Abstract

Background: Wide-awake local anesthesia no tourniquet (WALANT) enables pain control, a suitable surgical field, and active intraoperative motion assessment during hand surgery. This study evaluated early clinical outcomes, perioperative experience, and patient satisfaction after open trigger finger release under WALANT.

Materials and Methods: This prospective descriptive case series included 54 patients with 67 affected fingers who underwent open A1 pulley release under WALANT at Hue University of Medicine and Pharmacy Hospital between May 2025 and June 2026. Outcomes included anesthetic adequacy, surgical field quality, active finger motion, early complications, pain, anxiety, patient experience, and satisfaction.

Results: All 67 finger procedures were completed with adequate anesthesia without supplemental local anesthetic or unplanned tourniquet use; 62/67 (92.5%) had a good surgical field. After release, all fingers achieved full active flexion-extension without residual triggering or locking, and no early complications were identified at the 7-day follow-up. Anxiety decreased significantly across perioperative assessments ($p < 0.001$), while postoperative pain remained low and changed significantly over time ($p = 0.033$). The mean satisfaction score was 4.78 ± 0.42/5; all patients were satisfied or very satisfied, 98.1% preferred WALANT for a similar future procedure, and 72.2% were discharged on the day of surgery.

Conclusion: Open trigger finger release under WALANT was associated with immediate resolution of triggering, no recorded complications through postoperative day 7, and high patient satisfaction. These findings describe early clinical outcomes and patient acceptance within the observed care pathway; they do not establish longer-term functional recovery or the independent effect of WALANT.

Keywords: *trigger finger; WALANT; A1 pulley release; early clinical outcomes; patient satisfaction.*

1. INTRODUCTION

Trigger finger (stenosing flexor tenosynovitis) is a common hand disorder characterized by a mismatch between the flexor tendon and the A1 pulley, resulting in pain, catching, triggering, or locking during finger motion. The lifetime risk in the general population has been estimated at approximately 2.6% and is higher in certain at-risk groups, particularly patients with diabetes mellitus [1]. When conservative treatment fails or disease is advanced, open A1 pulley release is an effective treatment with high rates of symptom resolution and functional improvement [2, 3]. Nevertheless, although mechanical triggering may resolve immediately after surgery, patients may require several months to perceive complete recovery, underscoring the importance of evaluating postoperative outcomes beyond technical success to include functional recovery and patient experience [4].

Traditionally, trigger finger release is often performed under local anesthesia with a tourniquet to provide a relatively bloodless surgical field. However, tourniquet use can cause substantial discomfort and pain in awake patients. Wide-awake local anesthesia no tourniquet (WALANT) combines local anesthetic with epinephrine to provide anesthesia and hemostasis without a tourniquet or sedation. Large clinical series in hand surgery have demonstrated that appropriately diluted epinephrine can be used safely in the fingers, and WALANT has become increasingly adopted for routine hand procedures [5, 6].

For A1 pulley release, WALANT offers a particular advantage because the patient remains awake and able to perform active finger motion throughout the procedure. After release, the surgeon can ask the patient to actively flex and extend the finger to

assess tendon gliding, identify any residual catching, and confirm adequate release before wound closure. A randomized trial of trigger finger release showed that epinephrine-based WALANT provided a favorable surgical field and longer anesthesia than local anesthesia without epinephrine [7]. Other hand surgery studies have also reported reduced tourniquet-related discomfort, effective anesthesia, and high patient satisfaction with WALANT [8].

Beyond technical outcomes, patient experience has become an increasingly important component of quality assessment in WALANT surgery. Because patients remain fully awake, they can communicate directly with the surgical team, participate in intraoperative active-motion testing, and remain actively engaged in their care. Studies of patient experience have reported high acceptance of WALANT, high satisfaction, and a strong willingness to choose the technique again for future hand surgery [9-11]. A recent systematic review and meta-analysis of trigger finger release also suggested potential advantages of WALANT in postoperative pain, analgesic requirements, and satisfaction, although evidence of superior functional outcomes compared with local anesthesia using a tourniquet remains inconclusive [12].

For the Vietnamese clinical setting, a practical question is whether successful release is accompanied by an acceptable experience of awake surgery. Immediate resolution of triggering does not capture anxiety, communication with the surgical team, or willingness to undergo the procedure again, while high satisfaction alone does not establish clinical success. Joint assessment of these complementary domains can inform local implementation and patient counseling. Therefore, this study aimed to: (1) describe immediate mechanical outcomes and complications through postoperative day 7 after open A1 pulley release under WALANT; and (2) assess perioperative pain, anxiety, patient experience, and satisfaction. These outcomes were considered early clinical results rather than a comprehensive assessment of functional recovery.

2. MATERIALS AND METHODS

2.1. Study population

The study included patients with acquired trigger finger who underwent open A1 pulley release under WALANT at the Department of Orthopaedics, Hue University of Medicine and Pharmacy Hospital, from May 2025 to June 2026.

2.1.1. Inclusion criteria

Patients were eligible if they had a confirmed diagnosis of acquired trigger finger and an indication for surgery, defined as Green grade III or IV disease [13], or grade II disease that had not improved after at least 3 months of conservative treatment. Eligible patients were scheduled for open A1 pulley release under WALANT, provided written informed consent, and had complete study data.

2.1.2. Exclusion criteria

Patients were excluded if they had Green grade I disease, a known history of allergy to lidocaine, a systemic condition or comorbidity that precluded the planned operation, incomplete data for the prespecified study outcomes, or declined participation. Patients who underwent concomitant carpal tunnel release or surgery for any other hand condition during the same surgical session were also excluded.

2.2. Study methods

2.2.1. Study design

This was a prospective descriptive case series.

2.2.2. Setting and study period

The study was conducted at Hue University of Medicine and Pharmacy Hospital from May 2025 to June 2026.

2.2.3. Sample size and sampling

A convenience sample of eligible patients treated during the study period was included. A total of 54 patients with 67 affected fingers were analyzed. Forty-one patients underwent single-finger release, and 13 underwent release of two fingers during the same surgical session.

The unit of analysis depended on the outcome domain. Demographic characteristics, pain, anxiety, patient experience, satisfaction, and discharge outcomes were analyzed at the patient level (n = 54). Each patient contributed only one set of patient-reported scores at each assessment time point, regardless of the number of fingers operated on. Finger location, Green grade, and finger-specific clinical outcomes were summarized at the operated-finger level (n = 67). Finger-level outcomes were reported descriptively, acknowledging that observations from two fingers belonging to the same patient were correlated.

2.2.4. WALANT technique and surgical procedure

Patient preparation. Patients were positioned supine with the operative upper limb supported on a hand table. The surgical field was prepared from the hand to the mid-forearm using antiseptic solution and sterile draping. Before surgery, patients were

counseled about the WALANT technique, remaining awake during the procedure, and the need to cooperate with active finger motion testing.

WALANT technique. The anesthetic solution consisted of 1% lidocaine with epinephrine at a concentration of 1:200,000, without sodium bicarbonate. Lidocaine with appropriately diluted epinephrine is widely used in WALANT hand surgery and has an established safety profile for digital procedures [5, 6]. Approximately 4 – 6 mL was infiltrated per finger, adjusted to achieve adequate subcutaneous tumescence and vasoconstriction along the planned incision. The solution was injected into the subcutaneous fat overlying the A1 pulley rather than into the flexor tendon sheath. A 27- or 30-gauge needle was used. Gentle sensory stimulation was applied before needle insertion to distract the patient, and the solution was injected slowly before advancing the needle to minimize injection discomfort. No sedation or tourniquet was used. An approximately 30-minute interval was allowed between injection and skin incision to achieve optimal epinephrine-mediated vasoconstriction, and the injection-to-incision time was recorded for each procedure.

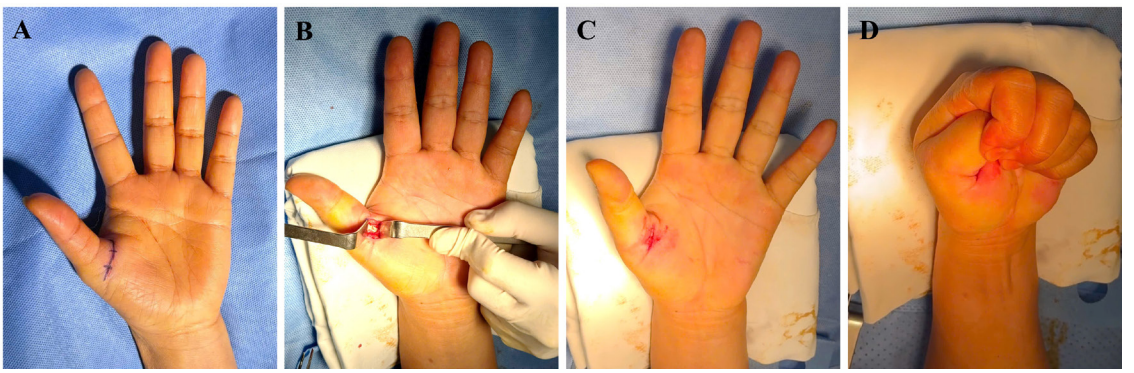


Figure 1. Open trigger thumb release using the WALANT technique. (A) Preoperative marking of the planned incision and corresponding WALANT infiltration sites. (B) Clear operative field after A1 pulley release. (C–D) Intraoperative active-motion testing immediately after release, demonstrating full finger flexion and extension without residual triggering, locking, or motion restriction

Surgical technique. Open A1 pulley release was performed according to standard principles [13]. For fingers II–V, a transverse incision of approximately 2 cm was made over the A1 pulley at the corresponding palmar crease; for the thumb, a transverse incision of approximately 1 cm was made at the base of the thumb. The subcutaneous tissue was carefully dissected to expose the A1 pulley while protecting the digital neurovascular bundles, particularly the radial digital nerve of the thumb. The A1 pulley was released longitudinally using a No. 15 blade and Metzenbaum scissors. After release, the patient was asked to repeatedly flex and extend the finger actively on the operating table. Free flexor tendon gliding, active motion, and the presence or absence of residual triggering or locking were assessed directly before wound closure. The ability to perform active intraoperative motion testing is a key feature of WALANT in trigger finger surgery [7, 8]. The skin was closed with nonabsorbable sutures and a light compressive dressing was applied.

Postoperative care. Patients were instructed to elevate the hand, monitor digital perfusion, perform wound care, and begin early active finger motion within pain tolerance. The compressive dressing was removed after approximately 48 hours and sutures were removed on postoperative day 7. Patients were encouraged to use the hand for light activities and progressively increase motion as tolerated. All 54 patients received oral paracetamol, 500 mg twice daily, within the first 24 postoperative hours. Additional doses were permitted as needed for pain, subject to the prescribed dosing intervals and maximum daily dose.

2.2.5. Study variables and outcome measures

General and disease characteristics. The characteristics presented included age, sex, occupation, diabetes mellitus, and the number of operated fingers per patient. Finger-specific characteristics included symptom duration, affected hand, affected finger, Green grade [13], and treatment received before surgery.

Perioperative characteristics and anesthetic effectiveness. Recorded perioperative variables included WALANT volume, lidocaine dose per body weight, injection-to-incision time, operative time,

and duration of anesthesia. Anesthetic effectiveness was defined by the ability to complete the procedure without supplemental local anesthetic or unplanned tourniquet use. Surgical field quality was graded using the bleeding scale applied by Mohd Rashid et al. [7], with scores of 1 – 3 classified as good, 4 – 6 as fair, and 7 – 10 as poor. The ability to perform active flexion-extension intraoperatively and to confirm complete A1 pulley release before closure was also recorded.

Early clinical outcomes and complications. Immediate mechanical success was defined as full active flexion-extension without residual triggering or locking after A1 pulley release. This assessment was based on observed active movement and did not constitute a comprehensive measure of hand function or return to daily activities. Digital perfusion was assessed by color, temperature, and capillary refill time, with a capillary refill time of ≤ 2 seconds considered normal. Complications were recorded during hospitalization and at the 7-day follow-up, including digital ischemia or necrosis, secondary bleeding, hematoma, surgical-site infection, wound dehiscence, digital nerve injury, persistent triggering, and need for reintervention.

Perioperative pain and anxiety. Patients self-rated pain and anxiety separately on 0 – 10 numeric rating scales (NRS). For anxiety, 0 represented no anxiety and 10 the highest possible anxiety. This single-item measure assessed perceived anxiety rather than diagnosing an anxiety disorder. Anxiety was assessed preoperatively, intraoperatively, and immediately after surgery. For pain, 0 represented no pain and 10 the highest possible pain. Pain was assessed at skin puncture, during local anesthetic injection, as the highest pain experienced during surgery, immediately after surgery, and at 6 and 24 hours postoperatively. Nursing staff administered the assessments verbally and recorded the scores reported by patients.

Patient experience and satisfaction. Perioperative experience was assessed using a study-specific structured questionnaire developed from domains reported in previous WALANT patient-experience studies [9-11, 14]. Items were selected, translated into Vietnamese, and adapted to the local clinical context. Experts within the research team and the hospital reviewed the selected items and their Vietnamese wording. Nursing staff administered the questionnaire verbally at hospital discharge and recorded patients' responses. Items addressed preoperative information about WALANT, explanation of alternative anesthetic options, postoperative wound-care education, hand elevation, early-motion instructions, perceived adequacy of pain control, perceived support from the care team, ease of communication with the surgeon, and experience relative to expectations. Overall satisfaction with WALANT was rated on a 5-point Likert scale from 1 (very dissatisfied) to 5 (very satisfied). Acceptance was further assessed by willingness to choose WALANT again, willingness to recommend the technique to others, and preferred anesthetic approach for a similar future hand procedure. Although reviewed by experts, the questionnaire had not undergone psychometric validation in a Vietnamese population. Individual experience items and the global satisfaction rating were reported separately, without creating a composite experience score. Discharge outcomes were reported separately from questionnaire responses. Elapsed time from procedure completion to discharge was summarized as a median and interquartile range (25^{th} – 75^{th} percentiles), and same-day discharge was reported as a frequency and percentage.

2.3. Statistical analysis

Data were coded and analyzed using SPSS version 22.0. Approximately normally distributed continuous variables are presented as mean ± standard deviation (SD), whereas skewed variables are presented as median and interquartile range (IQR). Categorical variables are reported as frequencies and percentages. For repeated measurements, data distribution was assessed before selecting the statistical test. Because pain and anxiety scores were non-normally distributed, the Friedman test was used for within-subject comparisons across assessment points. A p value < 0.05 was considered statistically significant. The patient was the unit of analysis for repeated pain and anxiety assessments (n = 54). Each Friedman p value represents an overall comparison across the three assessments within the corresponding domain, not a pairwise comparison between specific time points. Finger-level findings were reported as descriptive frequencies and percentages because 13 patients contributed two operated fingers. No inferential comparison treating all 67 fingers as independent was performed. Overall p values alone were not used to identify which assessment pairs differed.

2.4. Ethical considerations

The study was conducted in accordance with ethical principles for biomedical research. All patients received information about the study objectives and

procedures, their right to decline participation, and confidentiality protections before providing written informed consent. The study protocol was approved by the Biomedical Research Ethics Committee of the University of Medicine and Pharmacy, Hue University (Approval No. H2025/207, dated May 13, 2025). All personal data were coded and used solely for research purposes.

3. RESULTS

Between May 2025 and June 2026, 54 patients with 67 affected fingers underwent open A1 pulley release under WALANT at Hue University of Medicine and Pharmacy Hospital. Results are presented according to the two principal study objectives: early clinical outcomes and patient experience/satisfaction.

3.1. Participant characteristics

Table 1. Demographic characteristics and comorbidities of the study participants (n = 54)

Characteristic	Category	n	%
Age (years), mean ± SD		52.83 ± 7.29	
Age group	15 – 39	2	3.7
	40 – 59	44	81.5
	≥ 60	8	14.8
Sex	Male	3	5.6
	Female	51	94.4
Occupation	Manual worker	27	50.0
	Homemaker	20	37.0
	Officer/civil servant	5	9.3
	Other	2	3.7
Diabetes mellitus	Yes	3	5.6
	No	51	94.4
Number of operated fingers per patient	1 finger	41	75.9
	2 fingers	13	24.1

The mean age was 52.83 ± 7.29 years, and 81.5% of patients were aged 40 – 59 years. Women accounted for 51/54 patients (94.4%). Manual workers and homemakers represented 50.0% and 37.0%, respectively. Diabetes mellitus was present in 5.6% of patients.

Table 2. Finger-specific trigger finger characteristics and treatment before surgery (n = 67 operated fingers)

Characteristic	Category	n	%
Symptom duration (months), mean ± SD		6.77 ± 3.56	
Symptom duration	< 6 months	15	22.4
	6 – 12 months	38	56.7
	> 12 months	14	20.9
Affected hand	Dominant	41	61.2
	Non-dominant	26	38.8
Operated finger	Thumb	27	40.3
	Index finger	7	10.4
	Middle finger	22	32.8
	Ring finger	10	14.9
	Little finger	1	1.5

Characteristic	Category	n	%
Green grade	III	19	28.4
	IV	48	71.6
Treatment before surgery	No previous treatment	20	29.9
	Conservative medical treatment	47	70.1

All variables in Table 2 are reported per operated finger (n=67). The number of operated fingers per patient is reported in Table 1 (n = 54).

The dominant hand was affected in 61.2% of operated fingers. The thumb (40.3%) and middle finger (32.8%) were the most frequently treated fingers. Thirteen of 54 patients (24.1%) underwent surgery on two fingers. All operated fingers were Green grade III or IV, with grade IV accounting for 71.6%; 70.1% had received conservative medical treatment before surgery.

3.2. Early clinical outcomes

Table 3. Perioperative characteristics and procedural findings with the WALANT technique

Parameter	Value
WALANT solution volume per finger (mL), mean ± SD	4.72 ± 0.65
Lidocaine dose (mg/kg), mean ± SD	0.75 ± 0.12
Injection-to-incision time (min), mean ± SD	29.65 ± 2.15
Operative time (min), mean ± SD	12.78 ± 3.42
Duration of anesthesia (h), mean ± SD	8.91 ± 1.84
Adequate anesthesia for surgery, n (%)	67 (100.0)
Supplemental local anesthetic required, n (%)	0 (0.0)
Unplanned tourniquet use, n (%)	0 (0.0)
Good surgical field (score 1 – 3), n (%)	62 (92.5)
Active flexion-extension performed intraoperatively, n (%)	67 (100.0)
Complete A1 pulley release confirmed intraoperatively, n (%)	67 (100.0)

All 67 finger procedures were completed with adequate anesthesia without supplemental local anesthetic or unplanned tourniquet use. The mean injection-to-incision time was 29.65 ± 2.15 minutes, and the mean operative time was 12.78 ± 3.42 minutes. The surgical field was rated as good in 62/67 procedures (92.5%). Active flexion-extension could be performed in every case, allowing direct assessment of tendon gliding and confirmation of A1 pulley release before wound closure.

After surgery, all 67 fingers (100%) demonstrated full active flexion-extension without residual triggering or locking. Digital perfusion remained satisfactory in all cases, with warm, pink fingertips and capillary refill time ≤ 2 seconds. During hospitalization and at the 7-day follow-up, there were no episodes of persistent pallor or cyanosis, digital ischemia requiring intervention, skin or soft-tissue necrosis, secondary bleeding, hematoma, surgical-site infection, or wound dehiscence. No digital nerve injury, persistent triggering, or reoperation was recorded.

3.3. Perioperative experience and patient satisfaction

Table 4. Perioperative anxiety and pain scores (n = 54)

Measure	Mean ± SD	Median (IQR)	Min–Max	p
Anxiety				
Preoperative	6.15 ± 1.60	6.0 (5.0 – 7.0)	2 – 9	
Intraoperative	2.98 ± 1.42	3.0 (2.0 – 4.0)	1 – 7	**< 0.001**
Immediately postoperative	0.69 ± 0.64	1.0 (0.0 – 1.0)	0 – 2	

Measure	Mean ± SD	Median (IQR)	Min–Max	p
Pain during anesthesia and surgery				
Needle puncture	3.37 ± 1.47	3.0 (2.0 – 4.0)	1 – 7	
Local anesthetic injection	3.41 ± 1.95	3.0 (2.0 – 5.0)	0 – 8	0.121
Highest intraoperative pain	4.06 ± 1.66	4.0 (3.0 – 5.0)	1 – 8	
Postoperative pain				
Immediately after surgery	0.35 ± 0.71	0.0 (0.0 – 1.0)	0 – 3	
6 hours after surgery	0.33 ± 0.75	0.0 (0.0 – 1.0)	0 – 4	**0.033**
24 hours after surgery	0.15 ± 0.36	0.0 (0.0 – 0.0)	0 – 1	

(NRS, numeric rating scale; SD, standard deviation; IQR, interquartile range (25^{th} – 75^{th} percentiles). Scores range from 0 to 10, with higher scores indicating greater pain or anxiety. One overall Friedman p value is shown for each set of three assessments. These p values do not represent pairwise comparisons.)

Mean anxiety scores decreased from 6.15 ± 1.60 preoperatively to 2.98 ± 1.42 intraoperatively and 0.69 ± 0.64 immediately after surgery; the overall Friedman test indicated a difference across assessments ($p < 0.001$). The descriptive difference between the preoperative and immediate postoperative means was 5.46 NRS points. Pain related to local anesthetic administration and the operative period was generally low to moderate, with no statistically significant overall difference among the three recorded pain measures ($p = 0.121$). Postoperative pain remained low, with a median of 0 at each assessment; the overall Friedman test indicated a difference over time ($p = 0.033$). Mean postoperative pain was 0.35 immediately after surgery and 0.15 at 24 hours, a descriptive difference of 0.20 NRS points. The overall tests do not establish which specific assessment pairs differed.

Table 5. Perioperative experience, care support, and discharge disposition (n = 54)

Item	Result
Received oral analgesics within the first 24 hours	54 (100.0%)
Pain control rated as adequate	46 (85.2%)
Received adequate information about WALANT	54 (100.0%)
Alternative anesthetic options explained	54 (100.0%)
Received wound-care instructions	54 (100.0%)
Received hand-elevation instructions	54 (100.0%)
Received early-motion instructions	54 (100.0%)
Felt adequately supported by the care team	52 (96.3%)
Easy communication with the surgeon	52 (96.3%)
Experience much better than expected	47 (87.0%)
Experience as expected	7 (13.0%)
Experience worse than expected	0 (0.0%)
Time from procedure completion to discharge, median (25^{th} – 75^{th} percentiles)	8.0 (6.0 – 16.0) h
Same-day discharge	39 (72.2%)

All patients received information about WALANT as well as wound-care and early-motion instructions. Overall, 96.3% reported adequate support from the care team and easy communication with the surgeon during the procedure. Forty-seven patients (87.0%) rated the experience as much better than expected, and none rated it as worse than expected. The median time from procedure completion to discharge was 8 hours (IQR, 6 – 16 hours), and 39/54 patients (72.2%) were discharged on the same day. The interval of 6 – 16 hours represents the middle 50% of observations, not the minimum and maximum discharge times.

Table 6. Patient satisfaction and acceptance of WALANT (n = 54)

Outcome	Response	n	%
Overall satisfaction	Very satisfied	42	77.8
	Satisfied	12	22.2
	Neutral/dissatisfied	0	0.0
Mean satisfaction score, mean ± SD		**4.78 ± 0.42**	
Would choose WALANT again	Definitely yes	39	72.2
	Probably yes	14	25.9
	Unsure	1	1.9
	Would not choose again	0	0.0
Would recommend WALANT to others	Definitely yes	43	79.6
	Probably yes	11	20.4
	Would not recommend/unsure	0	0.0
Preferred anesthesia for a similar future procedure	WALANT	53	98.1
	Local anesthesia with tourniquet	0	0.0
	Sedation/general anesthesia	0	0.0
	Undecided	1	1.9

The mean satisfaction score was 4.78 ± 0.42/5; all patients were satisfied or very satisfied, including 77.8% who were very satisfied. Overall, 98.1% reported that they would definitely or probably choose WALANT again for a similar procedure, and all patients would definitely or probably recommend the technique to others. WALANT was the preferred anesthetic approach for a similar future hand procedure in 53/54 patients (98.1%).

4. DISCUSSION

4.1. Characteristics of the study population

The mean age of the study population was 52.83 ± 7.29 years, 81.5% were aged 40 – 59 years, and women predominated (94.4%). These findings are broadly consistent with the epidemiology of adult trigger finger, which is more common in middle-aged women and occurs more frequently in certain metabolic conditions, particularly diabetes mellitus [1]. The thumb and middle finger were the most commonly operated fingers, accounting for 40.3% and 32.8%, respectively. Although the distribution of affected fingers varies across populations, the ring finger, middle finger, and thumb are commonly reported among the most frequently involved fingers [1, 16].

All operated fingers were Green grade III or IV, with grade IV accounting for 71.6%, and 70.1% had received conservative medical treatment before surgery. This distribution reflects the study selection criteria and a population with clear mechanical symptoms or more advanced disease, consistent with the role of A1 pulley release after failed conservative management [2,3,13]. The high proportion of advanced disease should therefore be considered when extrapolating these findings to patients with milder trigger finger.

4.2. WALANT anesthetic performance and early clinical outcomes

A principal finding of this study was that every procedure was completed with adequate anesthesia without supplemental local anesthetic or unplanned tourniquet use. With a mean injection-to-incision interval of 29.65 ± 2.15 minutes, a good surgical field was achieved in 62/67 procedures (92.5%), and mean operative time was 12.78 ± 3.42 minutes. These observations describe satisfactory anesthetic adequacy and hemostasis in this cohort, without establishing superiority over another anesthetic technique.

Our findings are consistent with the randomized trial by Mohd Rashid et al., in which the WALANT group received 4 mL of 1% lidocaine with epinephrine 1:100,000 and underwent surgery after a 30-minute waiting period. A good surgical field was reported in 74% of WALANT procedures compared with 44% in the local-anesthesia-with-tourniquet group, and mean anesthetic duration was 6.86 hours in the WALANT group compared with 4.09 hours in the control group, representing a mean difference of

2.77 hours [7]. In the present study, mean anesthetic duration was 8.91 ± 1.84 hours. Differences across studies may reflect variation in injection technique, volume and concentration of local anesthetic, the definition of anesthesia duration, and patient characteristics; therefore, these values should not be interpreted as direct evidence of superiority between protocols.

With respect to the first study objective, all 67 operated fingers achieved full active flexion-extension without residual triggering or locking after release. The distinctive value of WALANT in this setting extends beyond anesthesia: because the patient remains awake, the surgeon can immediately test the mechanical result of release. Active flexion-extension before wound closure permits direct observation of flexor tendon gliding across the A1 pulley region and facilitates recognition of persistent catching that may indicate incomplete release. This real-time active assessment is particularly valuable in procedures in which tendon excursion and dynamic function are central to operative success [6-8].

The favorable early clinical findings are consistent with the high effectiveness generally reported after open A1 pulley release. Hansen et al. reported a 99% treatment success rate at 12 months after open surgery [3]. In a series of 192 patients, Stirling et al. reported functional improvement and high satisfaction after trigger finger release in both diabetic and non-diabetic patients [15]. Other clinical series have likewise shown reliable outcomes after open trigger release, although persistent pain, stiffness, recurrent triggering, and wound-related adverse events may occur [16, 17]. The immediate findings in our cohort should not be equated with treatment success or functional recovery measured at longer follow-up.

Importantly, the 100% resolution of triggering observed in this study should not be interpreted as evidence that WALANT provides superior functional outcomes to local anesthesia with a tourniquet. The meta-analysis by Levit et al., which included 11 studies and 1,233 patients, found no significant difference in functional outcomes or adverse events between WALANT and local anesthesia with a tourniquet, although several studies favored WALANT for pain, analgesic use, satisfaction, and care efficiency [12]. Because the present study had no control group, its primary contribution is to demonstrate the feasibility of active intraoperative functional assessment together with favorable immediate mechanical outcomes, rather than superiority over alternative anesthetic techniques.

Digital perfusion remained normal in all operated fingers, and no digital ischemia, tissue necrosis, or digital nerve injury was identified during early follow-up. These observations are consistent with the landmark prospective series by Lalonde et al., which included 3,110 consecutive elective cases using epinephrine in the fingers and hand without tissue loss due to digital ischemia [5]. Nevertheless, with only 67 operated fingers and 7-day early follow-up, the present study can only report the absence of ischemic complications in this cohort and is not powered to establish safety for very rare events.

4.3. Pain and anxiety as components of the WALANT experience

Mean anxiety scores decreased across the perioperative period, from 6.15 ± 1.60 before surgery to 2.98 ± 1.42 intraoperatively and 0.69 ± 0.64 immediately afterward (overall Friedman $p < 0.001$). This represents an observed preoperative-to-postoperative mean decrease of 5.46 NRS points. The overall test does not establish significance for each pair of assessments. Completion of surgery, counseling, and reassurance are possible contributors to this pattern; their effects cannot be separated from the anesthetic technique in this uncontrolled series.

This pattern is consistent with previous patient-experience studies of WALANT. Pina et al. reported a mean preoperative anxiety score of 3.47/10; 96.9% of patients had postoperative anxiety that was no higher than their preoperative level, and 97.7% would undergo WALANT again if indicated [10]. In the present study, thorough preoperative counseling, direct communication with the surgeon, and active participation in intraoperative motion testing may have contributed to a greater sense of control and reassurance. However, because there was no comparator and the effect of counseling was not isolated, the observed reduction in anxiety cannot be attributed solely to WALANT.

Mean pain scores were 3.37 ± 1.47 for needle puncture, 3.41 ± 1.95 during local anesthetic injection, and 4.06 ± 1.66 for the highest pain experienced intraoperatively; there was no significant difference among these three assessments ($p = 0.121$). No procedure required supplemental local anesthetic, although completion without additional anesthetic should not be interpreted as absence of intraoperative pain. Injection pain in our cohort was similar to the 3.41/10 reported by Pina et al. and lower than the 4.88/10 reported in the WALANT group by

Mohd Rashid et al. [7, 10]. Naude et al. reported lower mean pain scores of 1.5 during injection and 0.2 during surgery [11]. Such differences may reflect anesthetic composition, injection technique, bicarbonate buffering, patient expectations and anxiety, and pain-assessment methods.

Postoperative pain was low, with a median score of 0 immediately after surgery, at 6 hours, and at 24 hours. Although the overall Friedman test indicated a difference over time ($p = 0.033$), the immediate-to-24-hour difference in mean scores was only 0.20 NRS points. Statistical significance alone therefore does not establish a clinically important improvement or identify a particular time-point comparison. Far-Riera et al. reported lower postoperative pain and reduced analgesic requirements with a WALANT care pathway than with a conventional pathway [19], and the systematic review by Levit et al. identified similar trends in several included studies [12]. In the present cohort, however, all patients received oral analgesics within the first 24 hours. The observed pain scores reflect combined anesthetic, surgical, and postoperative care, and cannot establish the independent analgesic effect of WALANT or a reduction in rescue-analgesic requirements.

4.4. Patient experience and satisfaction

Patient experience was a major focus of the second study objective. All patients received information about WALANT as well as instructions on wound care and early finger motion; 96.3% felt adequately supported by the care team and reported easy communication with the surgeon. Most patients (87.0%) described the actual experience as much better than expected, and none reported an experience worse than expected. These findings emphasize that the quality of WALANT care depends not only on the local anesthetic technique but also on communication, counseling, psychological support, and clear postoperative care instructions while the patient remains fully awake.

This aspect is particularly relevant to patient-centered perioperative and nursing care. Unlike general anesthesia or deep sedation, WALANT allows patients to remain engaged with the surgical team, understand the progression of the procedure, and participate directly in active-motion testing. In this study, universal education regarding wound care, hand elevation, and early active motion also provided continuity between the operative episode and early recovery. However, in the absence of a comparison group, the coexistence of supportive care and positive patient experience does not establish a causal relationship or the independent effect of any component of care.

Overall satisfaction was high, with a mean score of 4.78 ± 0.42/5; all patients were satisfied or very satisfied, including 77.8% who were very satisfied. Furthermore, 98.1% would definitely or probably choose WALANT again, all would definitely or probably recommend the technique to others, and 98.1% selected WALANT as their preferred anesthetic approach for a similar future hand procedure. These findings are consistent with international reports. Teo et al. found that 86% of patients would choose wide-awake surgery again and 90% would recommend it to others [9]. Pina et al. reported that 97.7% would choose WALANT again [10], while Naude et al. found that all patients preferred an outpatient WALANT approach if another procedure were required [11]. In the study by de Buys et al., 87% would choose WALANT in the future, 87% would recommend it to relatives, and 70% rated the experience as better than expected [14].

The consistency of these findings across different health-care systems suggests that patient acceptability is a meaningful practical strength of WALANT. Nevertheless, very high satisfaction should be interpreted cautiously because satisfaction is influenced by preoperative expectations, communication with health-care staff, surgical success, and questionnaire design. In addition, patients who agree to undergo WALANT may already be more accepting of the technique, introducing the possibility of selection bias. Responses may also be influenced by courtesy or social-desirability bias, especially when patients are surveyed by members of the treating team. The timing and mode of questionnaire administration should therefore be considered when interpreting satisfaction.

Same-day discharge was recorded in 39/54 patients (72.2%), while the median elapsed time from procedure completion to discharge was 8 hours (IQR, 6 – 16 hours). The IQR is not the full range and does not determine the percentage discharged on the same day. These two summaries describe different aspects of discharge and should not be interpreted as interchangeable measures. Maliha et al. reported reduced turnover time and cost for WALANT trigger finger release in a procedure room compared with the main operating room [18], and Far-Riera et al. reported favorable experience and resource use in a WALANT outpatient pathway [19]. Our uncontrolled study cannot establish that WALANT itself shortened hospital stay. Institutional workflow, time of surgery,

and patient circumstances are possible influences on discharge, but their contributions were not established by these results.

4.5. Limitations and clinical implications

Several limitations should be considered. First, this was a prospective descriptive case series without a control group; therefore, the study cannot establish that WALANT is superior to local anesthesia with a tourniquet, regional anesthesia, or other anesthetic approaches. The sample size was modest, women constituted most of the cohort, and all operated fingers were Green grade III or IV, which may limit generalizability to the broader trigger finger population. In addition, 67 fingers were contributed by 54 patients, so observations from patients undergoing multiple-finger release were not fully independent. Pain, anxiety, and satisfaction were analyzed at the patient level, and finger-level results were descriptive; nevertheless, multiple-finger surgery may influence the overall patient experience. No adjusted comparison between single- and multiple-finger procedures was performed.

Second, early clinical outcomes were defined by immediate full active flexion-extension and resolution of triggering or locking, with early complication follow-up limited to 7 days. A standardized patient-reported functional measure such as the Quick Disabilities of the Arm, Shoulder and Hand questionnaire (QuickDASH) [20] was not used, and longer-term functional recovery was not assessed. This distinction is important because Blazar et al. demonstrated that although mechanical improvement after trigger finger release may occur early, patient-perceived complete recovery may take approximately 6 months, with QuickDASH improvement continuing over the ensuing weeks and months [4]. Accordingly, the present findings do not establish complete hand recovery, durable symptom resolution, or the absence of later complications.

Finally, the patient-experience questionnaire was informed by domains used in previous WALANT studies but has not been psychometrically validated as an independent instrument in a Vietnamese population. Anxiety was assessed with a single-item NRS rather than a multidimensional anxiety instrument. Patient expectations, selection of patients willing to undergo awake surgery, and response bias may influence these results. Concomitant oral analgesic use prevented attribution of low postoperative pain to WALANT alone. The reported overall Friedman tests do not identify specific pairwise differences, and standardized effect sizes were not reported. Future comparative studies should incorporate validated patient-reported measures, prespecified assessment of rescue analgesia, and follow-up of at least 3–6 months.

Overall, this series documents immediate mechanical success, no recorded complications through postoperative day 7, and high reported acceptance after open A1 pulley release under WALANT. These findings support further evaluation of this care pathway while leaving longer-term function and comparative effectiveness unresolved.

5. CONCLUSION

In this case series, open trigger finger release under WALANT was associated with immediate resolution of triggering and no recorded complications through postoperative day 7. Patients reported high satisfaction and acceptance. These findings describe early clinical outcomes within a care pathway that included oral analgesics; they do not establish longer-term functional recovery or superiority over other anesthetic techniques.

Conflict of Interest Statement

The authors declare no conflicts of interest related to the conduct, authorship, or publication of this study.

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