Diagnosis and Treatment of Trigger Finger in Brazil – A Cross-Sectional Study*

Diagnóstico e tratamento do dedo de gatilho no Brasil - Estudo transversal

Paulo Henrique Jeronimo da Silva[1] Vinícius Ynoe de Moraes[1] Nicolau Granado Segre[1] Edson Sasahara Sato[1] Flávio Faloppa[1] João Carlos Belloti[1]

[1] Orthopedics and Traumatology Department, Escola Paulista de Medicina, Universidade Federal de São Paulo, São Paulo, Brazil

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Address for correspondence Paulo Henrique Jerônimo da Silva, Departamento de Ortopedia e Traumatologia, Escola Paulista de Medicina, Universidade Federal de São Paulo, Rua Botucatu, 740 - Térreo – Protocolo, São Paulo, SP, 04023-900, Brazil (e-mail: pauloepm76@yahoo.com.br).

Abstract

Objective The present paper aims to evaluate the therapeutic planning for trigger finger by Brazilian orthopedists.

Methods This is a cross-sectional study with a population composed of participants from the 2018 Brazilian Congress on Orthopedics and Traumatology (CBOT-2018, in the Portuguese acronym), who answered a questionnaire about the conduct adopted for trigger finger diagnosis and treatment.

Results A total of 243 participants were analyzed, with an average age of 37.46 years old; most participants were male (88%), with at least 1 year of experience (55.6%) and from Southeast Brazil (68.3%). Questionnaire analysis revealed a consensus on the following issues: diagnosis based on physical examination alone (73.3%), use of the Quinnell classification modified by Green (58.4%), initial nonsurgical treatment (91.4%), infiltration of steroids combined with an anesthetic agent (61.7%), nonsurgical treatment time ranging from 1 to 3 months (52.3%), surgical treatment using the open approach (84.4%), mainly the transverse open approach (51%), triggering recurrence as the main nonsurgical complication (58%), and open surgery success in $>$ 90% of the cases (63%), with healing intercurrences (54%) as the main complication. There was no consensus on the remaining variables. Orthopedists with different practicing times disagree on treatment duration ($p = 0.013$) and on the complication rate of open surgery ($p = 0.010$).

Conclusions Brazilian orthopedists prefer to diagnose trigger finger with physical examination alone, to classify it according to the Quinnell method modified by Green,

Keywords

- trigger finger
- questionnaire
- cross-sectional study
- stenosing tenosynovitis

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to institute an initial nonsurgical treatment, to perform infiltrations with steroids and local anesthetic agents, to sustain the nonsurgical treatment for 1 to 3 months, and to perform the surgical treatment using a transverse open approach; in addition, they state that the main nonsurgical complication was triggering recurrence, and report open surgery success in > 90% of the cases, with healing intercurrences as the main complication.

Resumo

Objetivo Avaliar o planejamento terapêutico para o dedo em gatilho por ortopedistas brasileiros.

Métodos Estudo transversal, cuja população foi composta por participantes do Congresso Brasileiro de Ortopedia e Traumatologia 2018 (CBOT-2018). Foi aplicado um questionário sobre a conduta adotada no diagnóstico e tratamento do dedo em gatilho.

Resultados Foram analisados 243 participantes com média de idade de 37.46 anos, na maioria homens (88%), tempo de experiência de pelo menos 1 ano (55,6%), e da região Sudeste (68.3%). A análise dos questionários evidenciou que há consenso nos seguintes quesitos: diagnóstico somente com exame físico (73,3%), classificação de Quinnell modificada por Green (58,4%), tratamento inicial não cirúrgico (91,4%), infiltração de corticoide com anestésico (61,7%) tempo de tratamento não cirúrgico de 1 a 3 meses (52,3%), tratamento cirúrgico pela via aberta (84,4%), principalmente via aberta transversa (51%), recidiva do engatilhamento como principal complicação não cirúrgica (58%), e o sucesso da cirurgia aberta em > 90% (63%), sendo a sua principal complicação as complicações cicatriciais (54%). Sem consenso nas demais variáveis. De acordo com a experiência, foram observadas diferenças referentes ao tempo de tratamento ($p = 0.013$) e a taxa de complicação da cirurgia aberta ($p = 0.010$).

Conclusões O ortopedista brasileiro tem preferência pelo diagnóstico do dedo em gatilho apenas com exame físico, classifica segundo Quinnell modificado por Green, tratamento inicial não cirúrgico, infiltrações com corticoide e anestésico local, tempo de tratamento não cirúrgico de 1 a 3 meses, tratamento cirúrgico por via aberta transversa, principal complicação não cirúrgica a recidiva do engatilhamento, e considera o sucesso da cirurgia aberta em > 90% dos casos, tendo como principal complicação as complicações cicatriciais.

Palavras-chave
- dedo em gatilho
- questionário
- estudos transversais
- tenossinovite estenosante

Introduction

Trigger finger (stenosing flexor tenosynovitis) was a term first proposed by Notta in 1850.[1] This condition is a common cause of hand pain, which can result in limited finger, edema, discomfort, and disability, with a "triggering" sensation.[2]

Trigger finger is characterized by blocked sliding movements of the flexor tendon during finger flexion and extension. These pathological changes lead to a discrepancy between the relative size of the flexor tendon and its tendon sheath, resulting in an inability to flex or extend the finger comfortably.[3] The annual incidence of trigger finger in the general population is of 28 per 100,000 people.[4] Among adults, women at the 5th and 6th decades of life are the most affected by trigger finger.[3,5,6] In addition, trigger finger epidemiology is associated with other conditions, including rheumatoid arthritis, gout, carpal tunnel syndrome, De Quervain disease, and diabetes mellitus.[3,7,8]

The classic "click" and locking presentation of a trigger finger is typically sufficient for its diagnosis. However, certain cases require a differential diagnosis from other conditions, such as tendon sheath infection, calcific peritendinitis or periarthritis.[9] Ultrasonography or magnetic resonance imaging (MRI) can aid in the differential diagnosis of these cases.[10]

Currently, there are several treatment options available for trigger finger, including noninvasive and surgical procedures.[11–13] Infiltrations are often recommended as the first line of treatment, using several drugs, including steroids and hyaluronic acid, with similar outcomes.[11,14] Despite the good outcomes from the steroid treatment, many patients with trigger finger still require surgical therapy.[8,12,15,16] Sato et al.[3] compared steroid injections with percutaneous and open surgical techniques for pulley release to treat trigger finger. Patients treated with steroids presented a cure rate of 86% after 2 injections, whereas all surgical patients were cured.

Even though trigger finger is epidemiologically relevant in orthopedics and traumatology, there is no standardized, uniform clinical conduct to classify, diagnose and treat this condition. Thus, the present study aimed to evaluate diagnosis and treatment methods for trigger finger adopted by Brazilian orthopedists.

Materials and Methods

Study Type

Cross-sectional, analytical, observational study carried out in the Department of Orthopedics and Traumatology, Hospital São Paulo, Universidade Federal de São Paulo (UNIFESP, in the Portuguese acronym), São Paulo, Brazil, from August 2018 to August 2019. The present study was approved by the Research Ethics Committee under the number CAAE 11957619000005505. It was carried out during the 2018 Brazilian Congress of Orthopedics and Traumatology (CBOT-2018, in the Portuguese acronym). Brazilian orthopedists and residents from orthopedics and traumatology programs, both males and females, present at CBOT-2018, who agreed to answer the questionnaire and signed the informed consent form (ICF) were included in the study. Participants from other nationalities, nonparticipating physicians, and subjects with incomplete information were not included.

Questionnaire Application

Participants were given a questionnaire with 15 questions regarding their demographics and the conduct adopted for trigger finger diagnosis and treatment (►**Appendix 1).**

Statistical Analysis

Sample size was calculated at 230 participants considering a 5% sampling error and a 95% confidence level. Proportional homogeneity was analyzed using the chi-squared test or the Fisher exact test. The three groups of respondents were compared using analysis of variance (ANOVA). The results were analyzed with SPSS Statistics for Windows Version 16.0 (SPSS Inc., Chicago, IL USA) and GraphPad Prism 5.0 (GraphPad Software, San Diego, CA, USA) with significance set at $p < 0.05$.

Table 1 Demographics of the respondents

Variables	N	%
Gender		
Female	29	12.0
Male	212	88.0
Unknown	2	
Brazilian region		
Southeast	155	63.8
Northeast	28	11.5
South	28	11.5
Central-West	18	7.4
North	14	5.8
Practicing time		
Resident	98	40.3
Up to 1 year	10	4.1
1-5 years	35	14.4
5-10 years	26	10.7
> 10 years	74	30.5
Specialty		
Orthopedics Residence	91	37.4
Trauma	48	19.8
Knee	24	9.9
Hand	17	7
Hand Surgery Residence	12	4.9
Shoulder/Elbow	11	4.5
Spine	10	4.1
Pediatrics	8	3.3
Foot/Ankle	7	2.9
External Fixation	5	2.1
Hip	5	2.1
Bone Tumor	4	1.6
Sports Trauma	1	0.4
Mean age (years old) 37.46 ± 11.01	**Minimum** 24.00	**Maximum** 79.00

Results

The study population was composed of 243 participants. Most participants were male (88%; $n = 212$), with at least 1 year of experience in their specialties (55.6%; $n = 145$). The majority of the participants were orthopedics residents (37.4%; $n = 91$) with subspecialization in trauma (19.8%; $n = 48$). The mean age of the participants was 37.46 years old. Most of them were from Southeast Brazil (68.3%; $n = 155$) (►**Table 1**).

Trigger finger was diagnosed by 73.3% ($n = 178$) of the respondents by locking observation during physical examination, and by 25.5% ($n = 62$) of the respondents based on physical examination and ultrasonography findings. For trigger finger classification, 58.0% ($n = 142$) of the respondents used the Green system, whereas 19.0% ($n = 46$) of them adopted the Quinell method. Regarding initial treatment options, most orthopedists selected nonsurgical methods, mainly physical therapy (46.5%; $n = 113$), followed by infiltration at the A1 pulley (31.7%; $n = 77$). Steroids and anesthetic agent combinations were the preferred treatment (61.70%; $n = 150$), and these infiltrations were mostly administered once (34.1%; $n = 83$) or twice (34.9%; $n = 97$). Treatment duration ranged from 1 to 3 months for most respondents (52.30%; $n = 127$). Among surgical treatment options, the open transverse approach (51.0%; $n = 124$) was the preferred procedure. The anesthesia protocol most reported by the respondents was sedation with local anesthetic administration (38.7%; $n = 94$) (►**Figure 1**).

Regarding success and complications from different treatment options, 46.6% ($n = 112$) of the respondents reported a

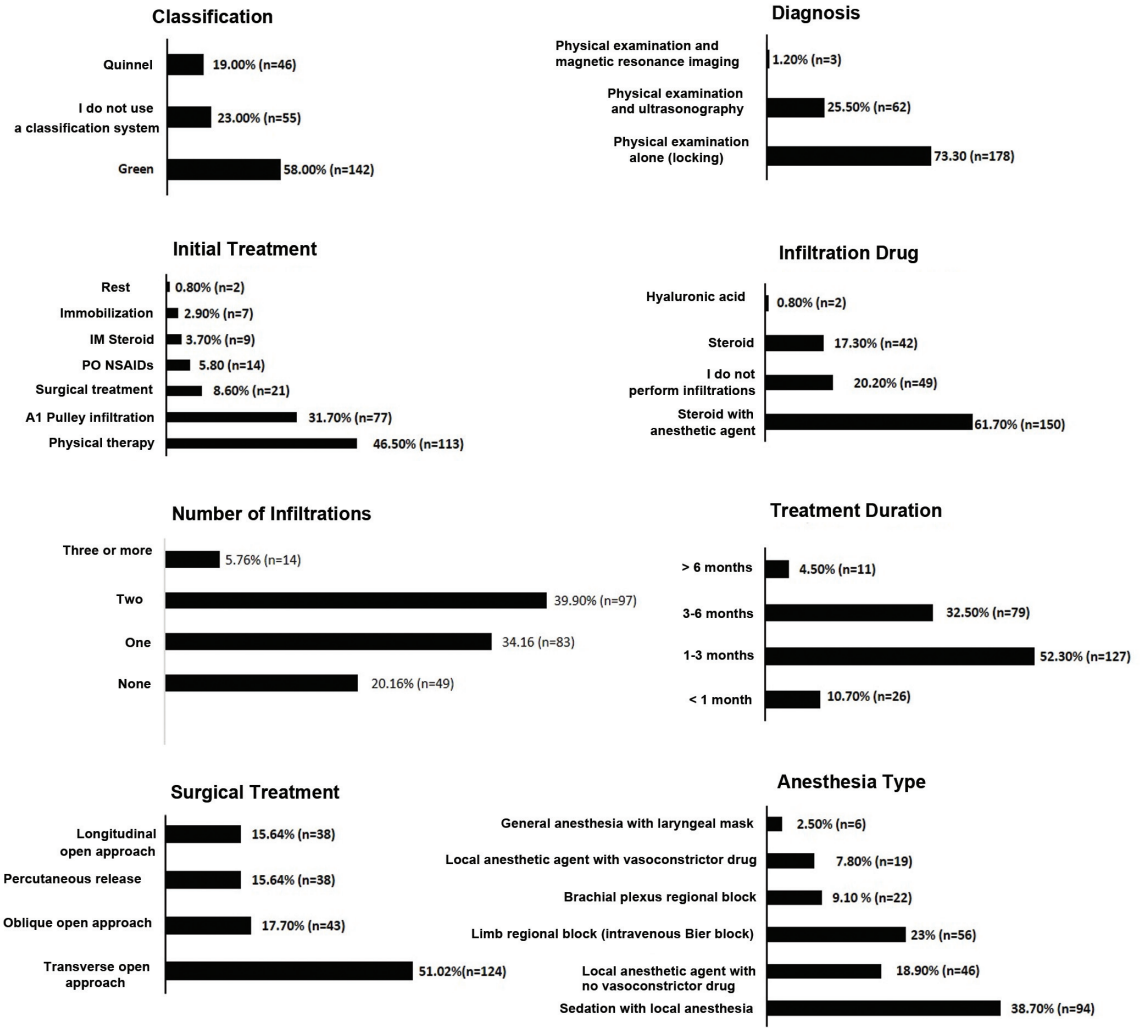

Fig. 1 Diagnosis and treatment of trigger finger. Abbreviations: IM, Intramuscular route; NSAIDs, non-steroidal anti-inflammatory drugs; PO, oral route.

success rate ranging from 30 to 60% for nonsurgical treatment; triggering recurrence was the most frequently reported complication (58.0%; $n = 140$). Percutaneous surgery had a success rate ranging from 60 to 90% for 43.0% ($n = 104$) of the respondents, and its most common complication was triggering recurrence (48.0%; $n = 117$). In contrast, open surgery had a success rate > 90.0% for 63.0% ($n = 154$) of the respondents, with healing intercurrences (54.0%; $n = 130$) as the most frequently reported complication (►**Figure 2**).

To determine whether the clinical practicing time influenced the answers pf the participants, the sample was divided into 3 groups: orthopedics residents ($n = 98$), clinical practice time ≤ 5 years ($n = 45$) and clinical practice time > 5 years ($n = 100$). All groups presented a higher frequency of male professionals, and the resident group (21.4%; $n = 21$) had the highest proportion of female participants compared with the remaining groups, with $p < 0.001$. As expected, residents had a lower mean age compared with the other groups, with $p < 0.001$. There was no statistically significant difference for the regional distribution of the participants (►**Table 2**).

There were no differences ($p > 0.05$) regarding trigger finger diagnosis and classification options according to the practicing time of the participants (►**Table 3**). Regarding nonsurgical treatment options and the practicing time of the orthopedist, differences in treatment duration were observed ($p = 0.013$). A treatment duration ranging from 1 to 3 months was the most commonly reported. However, a greater proportion of respondents with ≤ 5 years of experience (17.8%; $n = 8$) reported that the treatment lasted < 1 month compared with residents (7.1%; $n = 7$) and participants with > 5 years of experience (11.0%; $n = 11$). In addition, more residents stated that the treatment lasted for > 6 months (8.2%; $n = 8$) compared with participants with ≤ 5 years (0.0%; $n = 0$) or > 5 years (3.0%; $n = 3$) of experience.

Regarding surgical treatments according to the practicing time of the participants, there was a difference in open surgery in complications ($p = 0.010$) (►**Table 4**). Surgical wound complications were the most frequently mentioned

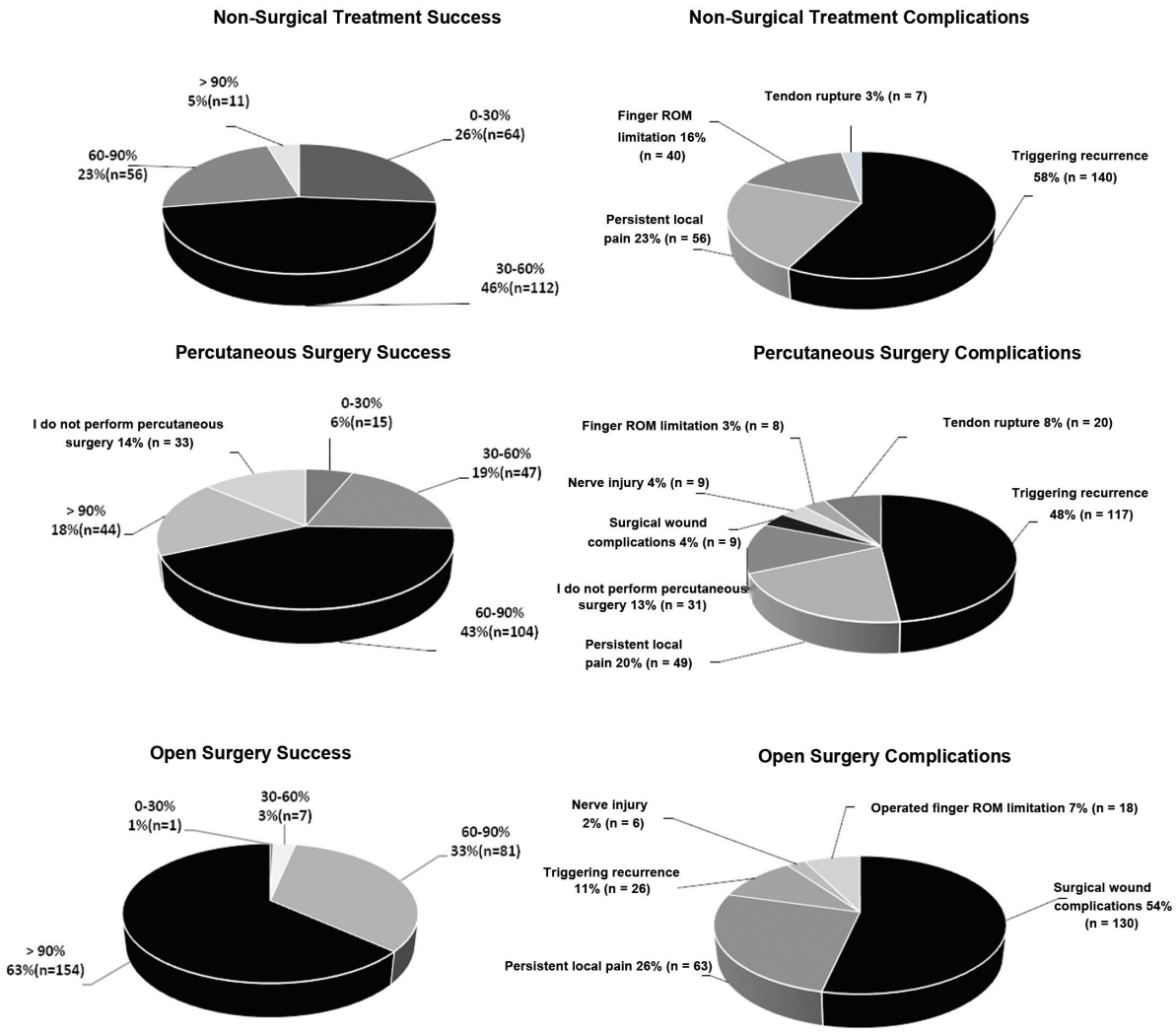

Fig. 2 Success and complications of trigger finger treatments. Surgical wound complications include adhesions, hematoma, and infection. Abbreviations: ROM, range of motion.

in all three groups. Persistent pain was reported by a higher number of residents (32.6%; $n = 32$) compared with professionals with $\leq$ 5 years (22.2%; $n = 10$) or $>$ 5 years (21.0%; $n = 21$) of experience. In addition, triggering recurrence was more observed by orthopedists with $>$ 5 years (16.0%; $n = 16$) of experience compared with residents (8.2%; $n = 8$) and professionals with $\leq$ 5 years (4.4%; $n = 2$) of clinical practice.

Discussion

The total sample consisted of 243 participants, with an average age of 37.46 years old. Most participants completed residence and had $>$ 10 years of clinical practice. This number of respondents was higher compared to other Brazilian studies evaluating orthopedists.[17–19] Okamura et al.[18] evaluated trends in carpal tunnel syndrome planning, diagnosis and treatment by Brazilian surgeons and reported that 40% of orthopedists had been practicing for $>$ 10 years.

Trigger finger was diagnosed due to locking observation during physical examination by 73.3% ($n = 178$) of the respondents; for 25.5% ($n = 62$) of the respondents, the diagnosis was based on physical examination and ultrasonography findings. These figures are consistent with the literature. Trigger finger is known for its classic presentation of snap and locking at the physical examination, which is typically sufficient for its diagnosis.[10] As such, radiographs are not required for trigger finger diagnosis.[20]

Several classification systems have been proposed for trigger finger.[1] In our study, the most used classifications are those by Green et al.[21] and Quinnell et al.,[15] with no differences according to the practicing time of the orthopedist. These results agree with a systematic review from Fiorini et al.[22]

Table 2 Respondents profile according to practicing time

	Practicing Time						
	Resident ($n = 98$)		$\leq$ 5 years ($n = 45$)		$>$ 5 years ($n = 100$)		
Variable							*p-value*
Age							
Mean	29.65 ± 3.58		32.60 ± 3.17		47.30 ± 10.50		$<$ **0.0001****
Gender	*n*	%	*n*	%	*n*	%	
Male	77	78.6	39	88.6	96	97.0	$<$ **0.001***
Female	21	21.4	5	11.4	3	3.0	
Unknown	2						
Region							
Southeast	68	69.39	25	55.56	62	62.0	0.227**
Central-West	9	8.82	1	2.22	8	8.0	
Northeast	9	8.82	9	20.00	10	10.0	
North	4	3.92	2	4.44	8	8.0	
South	8	7.84	8	17.78	12	12.0	

ANOVA*, Fischer test,** and chi-squared tests*** were used, considering $p < 0.05$ for statistically significant difference.

showing that most studies on trigger finger use the Quinnell classification for disease characterization.[3,22]

The initial treatment for trigger finger is conservative, including nonsteroidal anti-inflammatory drugs, immobilization, physical therapy and infiltrations.[11,22,23] Physical therapy is a conservative treatment for trigger finger, but some authors question its success.[24,25] Still, Salim et al.[24] compared the efficacy of physical therapy and steroid injection in the treatment of mild trigger finger. At 3 months, the success rate of steroid injections and physical therapy was of 97.4% and 68.6%, respectively. However, after 6 months of treatment, only patients treated with steroids experience pain and recurrence.

The opinion of the respondents on infiltration is consistent with studies recommending steroid injections as the first line of treatment.[11,23] The preference for steroid and anesthetic agent combinations for treatment was reported by 61.70% of respondents, especially in 1 or 2 applications. This conduct is consistent with the studies carried out by Clark et al.[26] and Rhoades et al.,[27] showing that a single-dose treatment can result in a success rate ranging from 72 to 82%. In addition, Marks et al.[23] reported an increased success rate of 91% after a second injection compared with the 84% success rate achieved with the first injection

The divergence of the conduct of the respondents regarding nonsurgical treatment duration with their practicing time reflects the several approaches reported in the literature. The preferred treatment duration ranged from 1 to 3 months, and differed according to the practicing time of the orthopedist, with $p = 0.013$. A treatment duration of < 1 month was mostly reported by respondents with a practicing time $\geq$ 5 years, whereas residents stated that treatment should last for at least 6 months. Some clinical studies in trigger finger adopt a 2- to 3-month follow-up,[28,29] which is similar to our findings. In contrast, other studies reported treatment for $>$ 6 months.[3,30]

Nonsurgical treatment had a success rate ranging from 30 to 60% for 46% of the respondents, and triggering recurrence was the most commonly reported complication. This success rate is inconsistent with a study from Sato et al.,[3] who reported a cure rate of 57% of patients undergoing steroid injection, which increased to 86% with the second infiltration. Despite the good outcomes from steroids, this technique has important limitations, such as the recurrence rate of up to 48%; in addition, this data agrees with the conduct of the respondents.[3,22]

Surgical treatment of trigger finger can use either an open or percutaneous approach. Among surgical treatment options, the preference of the respondents for open transverse (51.02%) and open oblique (17.70%) procedures was highlighted. This finding is consistent with other studies that indicate open surgical release as the standard technique for trigger finger surgical treatment, with no consensus on the best access route.[11,23]

Outpatient-based hand surgery has stimulated the use of local anesthesia and sedation to reduce hospitalization costs and time.[6,13,31,32] Our results are consistent with this approach. Respondents prefer sedation with local anesthetic agents (38.70%), which are considered a safe, quick, and effective option. However, its administration is painful and $\sim$10% of the patients prefer another form of anesthesia.[31] Thus, additional sedation can render the procedure more comfortable. The use of a local anesthetic agent with a vasoconstrictor drug was rarely stated by respondents (7.8%; $n = 19$), although it is known to be safe in hand surgeries.[33] A Brazilian study evaluated the use of local anesthesia with lidocaine and epinephrine in wrist, hand and finger surgery, with no tourniquet, sedation or anesthetist and did not report any epinephrine-related complications.[34]

Surgical treatment for trigger finger has a reported success rate of up to 97%.[3,22] Percutaneous surgery had 60 to 90%

Table 3 Nonsurgical diagnosis and treatment of trigger finger according to the practicing time of the orthopedist

	Practicing Time			
Variable	**Resident ($n = 98$)**	**$\leq$ 5 years ($n = 45$)**	**$>$ 5 years ($n = 100$)**	***p-value***
Diagnosis				
Physical examination alone (locking)	68 (69.4%)	34 (75.6%)	76 (76.0%)	0.146**
Physical examination and ultrasonography	30 (30.6%)	9 (20.0%)	23 (23.0%)	
Physical examination and magnetic resonance imaging	0 (0%)	2 (4.4%)	1 (1.0%)	
Classification				
Green	50 (51.0%)	28 (62.2%)	64 (64.0%)	0.375*
I do not use a classification system to treat	27 (27.6%)	10 (22.2%)	18 (18.0%)	
Quinell	21 (21.4%)	7 (15.6%)	18 (18.0%)	
Initial treatment				
Physical therapy	43 (43.9%)	17 (37.8%)	53 (53.0%)	0.672**
A1 Pulley infiltration	34 (34.7%)	17 (37.8%)	26 (26.0%)	
Surgical treatment	9 (9.2%)	5 (11.1%)	7 (7.0%)	
NSAIDs, PO	7 (7.1%)	2 (4.4%)	5 (5.0%)	
Steroid, IM	2 (2.0%)	2 (4.4%)	5 (5.0%)	
Immobilization	2 (2.0%)	1 (2.2%)	4 (4.0%)	
Rest	1 (1.0%)	1 (2.2%)	0 (0%)	
Drug used for infiltration				
Steroid with anesthetic agent	62 (63.3%)	29 (64.4%)	59 (59.0%)	0.626**
I do not perform infiltrations	21 (21.4%)	8 (17.8%)	20 (20.0%)	
Steroids	15 (15.3%)	8 (17.8%)	19 (19.0%)	
Hyaluronic acid	0 (0%)	0 (0%)	2 (2.0%)	
Number of Infiltrations				
None	19 (19.4%)	10 (22.2%)	20 (20.0%)	0.274**
1	41 (41.8%)	10 (22.2%)	32 (32.0%)	
2	34 (34.7%)	20 (44.5%)	43 (43.0%)	
$\geq$ 3	4 (4.1%)00	5 (11.1%)	5 (5.0%)	
Treatment Duration				
$<$ 1 month	7 (7.1%)	8 (17.8%)	11 (11.0%)	**0.013****
1-3 months	46 (46.9%)	29 (64.4%)	52 (52.0%)	
3-6 months	37 (37.8%)	8 (17.8%)	34 (34.0%)	
$>$ 6 months	8 (8.2%)	0 (0%)	3 (3.0%)	
Nonsurgical Treatment Complications				
Triggering recurrence	55 (56.1%)	27 (60.0%)	58 (58.0%)	
Persistent local pain	27 (27.6%)	8 (17.8%)	21 (21.0%)	0.805**
Limited finger ROM	14 (14.3%)	9 (20.0%)	17 (17.0%)	
Tendon rupture	2 (2.0%)	1 (2.2%)	4 (4.0%)	
Nonsurgical Treatment Success Rate				
0-30%	25 (25.5%)	9 (20.0%)	30 (30.0%)	0.616**
30-60%	47 (48.0%)	22 (48.9%)	43 (43.0%)	
60-90%	24 (24.5%)	11 (24.4%)	21 (21.0%)	
$>$ 90%	2 (2.0%)	3 (6.7%)	6 (6.0%)	

Abbreviations: IM, Intramuscular route; NSAIDs: non-steroidal anti-inflammatory drugs; PO: oral route; ROM, range of motion.
Healing complications include adhesions, hematoma, and infection. Fischer test** and chi-squared test*** were used, considering $p < 0.05$ for statistically significant difference.

Table 4 Surgical treatment for trigger finger according the practicing time of the orthopedist

	Practicing Time			
Variable	**Resident ($n = 98$)**	**$\leq$ 5 years ($n = 45$)**	**$>$ 5 years ($n = 100$)**	***p-value***
Anesthesia type				
Sedation with local anesthesia	35 (35.7%)	17 (37.8%)	42 (42.0%)	0.953**
Limb regional block#	23 (23.5%)	12 (26.7%)	21 (21.0%)	
Local anesthetic agent with no vasoconstrictor drug	21 (21.4%)	9 (20.0%)	16 (16.0%)	
Brachial plexus regional block	10 (10.2%)	4 (8.9%)	8 (8.0%)	
Local anesthetic agent with vasoconstrictor drug	7 (7.2%)	3 (6.6%)	9 (9.0%)	
General anesthesia with laryngeal mask	2 (2.0%)	0 (0%)	4 (4.0%)	
Surgical Treatment				
Transversal open approach	48 (49.0%)	24 (53.3%)	52 (52.0%)	
Oblique open approach	22 (22.4%)	6 (13.3%)	15 (15.0%)	
Percutaneous release	18 (18.4%)	7 (15.6%)	13 (13.0%)	0.366*
Longitudinal open approach	10 (10.2%)	8 (17.8%)	20 (20.0%)	
Percutaneous Surgery Complications				
Triggering recurrence	44 (44.9%)	23 (51.1%)	50 (50.0%)	
Persistent local pain	20 (20.4%)	12 (26.8%)	17 (17.0%)	0.806**
I do not perform percutaneous surgery	13 (13.2%)	5 (11.1%)	13 (13.0%)	
Tendon rupture	8 (8.2%)	1 (2.2%)	11 (11.0%)	
Operated finger ROM limitation	5 (5.1%)	1 (2.2%)	2 (2.0%)	
Nerve injury	4 (4.1%)	1 (2.2%)	4 (4.0%)	
Surgical wound complications	4 (4.1%)	2 (4.4%)	3 (3.0%)	
Open Surgery Complications				
Surgical wound complications	49 (50.0%)	26 (57.8%)	55 (55.0%)	**0.010****
Persistent local pain	32 (32.6%)	10 (22.2%)	21 (21.0%)	
Operated finger ROM limitation	8 (8.2%)	7 (15.6%)	3 (3.0%)	
Triggering recurrence	8 (8.2%)	2 (4.4%)	16 (16.0%)	
Nerve injury	1 (1.0%)	0 (0%)	5 (5.0%)	
Percutaneous Surgery Success				
0-30%	8 (8.2%)	3 (6.7%)	4 (4.0%)	0.858*
30-60%	18 (18.4%)	9 (20.0%)	20 (20.0%)	
60-90%	46 (46.9%)	17 (37.8%)	41 (41.0%)	
$>$ 90%	14 (14.3%)	10 (22.2%)	20 (20.0%)	
I do not perform percutaneous surgery	12 (12.2%)	6 (13.3%)	15 (15.0%)	
Open Surgery Success				
0-30%	0 (0%)	0 (0%)	1 (1%)	0.513*
30-60%	4 (4.1%)	2 (4.4%)	1 (1.0%)	
60-90%	34 (34.7%)	12 (26.7%)	35 (35.0%)	
$>$ 90%	60 (61.2%)	31 (68.9%)	63 (63.0%)	

Abbreviation: ROM, Range of motion.
Surgical wound complications include adhesions, hematoma, and infection; regional limb block refers to an intravenous Bier block. Fischer test** and chi-squared test*** were used, considering $p < 0.05$ for statistically significant difference..

of success for 43.0% of respondents, and its most common complication was triggering recurrence. In contrast, open surgery had a success rate > 90% for 63% of respondents. Regarding percutaneous surgery, the findings are not consistent with the literature, which shows that open and percutaneous procedures had similar efficacy, > 90%.[3]

Surgical wound intercurrences were the most reported complications of open surgery; however, there was a difference according to clinical practicing time, with $p = 0.010$. Persistent pain was more observed by residents, while trigger recurrence was more reported by professionals with > 5 years of clinical practice. Outcomes from open release of the A1 pulley are usually excellent,[11] with high success rates and minimal recurrence. Despite this, there are reports of complications, such as painful scars, infection, nerve damage and recurrence.[3,35]

Conclusion

When performing the therapeutic plan for trigger finger, Brazilian orthopedists establish the diagnosis with physical examination alone, use the Quinnell classification modified by Green, and initially institute a nonsurgical treatment for 1 to 3 months, consisting of infiltrations with steroids and local anesthetic agents; in case of failure, they opt for surgical treatment using an open transverse approach, which is successful in > 90% of patients. The main nonsurgical complications were triggering recurrences, and the main surgical complications were healing intercurrences.

Conflict of Interests

The authors have no conflict of interests to declare.

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Annex 1 QUESTIONNAIRE OFF DIAGNOSIS AND TREATMENT OF TRIGGER FINGER

N A M E : _____-
_____
AGE: _____ years

What is your speciality?
( ) Resident Orthopedics ( ) Resident hand surgery
( ) ORTHOPEDICIST / SPECIALTY:_____

How long have you been in your specialty?
a) I am a resident
b) up to 1 year
c) 1-5 years
d) 5-10 years
e) more than 10 years

1) What is the region in which you work?
a) south
b) southeast
c) north
d) northeast
e) Midwest

2) How do you diagnose a trigger finger?
a) Physical examination only (crash)
b) Physical examination and ultrasound
c) Physical examination and MRI
d) Other (specify) _____

3) What classification do you use to plan the treatment of the trigger finger?
a) Quinel
b) Green
c) other (specify) _____
d) do not use classification to treat

4) What is your preference for initial trigger finger treatment (only 1 option)?
a) physiotherapy
b) immobilization
c) VO NSAIDs
d) rest
e) IM corticoid
f) infiltration of the A1 pulley
g) surgical treatment

5) When infiltration is indicated, which substance do you prefer (only 1 option)?
a) Corticoid
b) Corticoid + anesthetic
c) Anesthetic
d) Hyaluronic acid
e) other (specify): _____

6) How many infiltrations do you perform on the trigger finger before considering treatment failure?
a) none (do not infiltrate)
b) 1
c) 2
d) 3 or more

7) How long do you treat the trigger finger until you indicate surgical treatment?
a) <1 month
b) 1-3 months
c) 3-6 months
d) >6 months

8) In the indication of surgical treatment, which type of anesthesia is your preference?
a) General anesthesia with laryngeal mask
b) Sedation + local anesthetic
d) Local anesthetic without vasoconstrictor
e) Local anesthetic with vasocontritor
f) Regional limb block () venous bier () brachial plexus block

9) In the indication of surgical treatment, what is your preference?
a) percutaneous release
b) transverse open path
c) oblique open road
d) longitudinal open path

10) What is your main complication in non-surgical treatment?
a) relapse of the triggering
b) persistent local pain
c) tendon rupture
d) ADM finger limitation

11) What is your main complication in percutaneous surgery?
a) relapse of the triggering
b) persistent local pain
c) complications of the surgical incision (adhesion, hematoma, infection)
d) ADM limitation of the operated finger
e) nerve damage
f) tendon rupture
g) I don't do percutaneous surgery

12) What is your main complication in open surgery?
a) relapse of the triggering
b) persistent local pain
c) complications of the surgical incision (adhesion, hematoma, infection)
d) ADM limitation of the operated finger

e) nerve damage

13) In your experience, what is the percentage of success with non-surgical treatment?

a) 0-30%
b) 30-60%
c) 60-90%
d) >90%

14) In your experience, what is the percentage of success with percutaneous surgical treatment?

a) 0-30%
b) 30-60%
c) 60-90%
d) >90%
e) I don't do percutaneous surgery

15) In your experience, what is the percentage of success with open surgical treatment?

a) 0-30%
b) 30-60%
c) 60-90%
d) >90%