Manual therapy and therapeutic exercise in patients with coccydynia: a scoping review

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INTRODUCTION

Coccydynia is characterized by pain in the coccyx region in the absence of back pain or radiation to the lower limb; it affects women five times more than men, probably due to differences in the shape and angles of the pelvis. There are two subgroups: traumatic coccygodynia and idiopathic. Traumatic coccydynia occurs following a fall on the buttocks; the idiopathic often has unknown or poorly understood etiology. Diagnosis is based on the patient's history and clinical examination. Typical coccyx pain is provoked by sitting, and palpation can identify tenderness. Treatment for coccydynia is, in most cases, conservative, and it is only in rare cases that surgery is opted for. Consequently, in the acute phase, non-steroidal anti-inflammatory drugs, cushions that help relieve the pressure exerted on the coccyx during sitting, local corticosteroid injections, impaired ganglion block, nerve ablation procedures, intrarectal massage and manipulation, levator ani massage and coccyx manipulation are commonly administered. However, patients who do not respond to these treatments may undergo partial or total coccygectomy.

This work aims to evaluate the scientific literature and synthesize the published articles on the treatment and management of coccydynia.

METHODS

This scoping review was conducted using methods outlined in the Joanna Briggs Institute reviewers manual and was reported following the PRISMA-ScR extension for scoping reviews.

Studies were included on a Population (i.e., all studies involving both male and female patients suffering from coccydynia), Concept (i.e., any study involving coccydynia), and Context (i.e., any context) (PCC) basis. In addition, this work considered primary studies that report data regarding patients with coccydynia and their treatment. Studies that involved surgery or pharmacological treatment were excluded.

Table. Characteristics of the included studies.

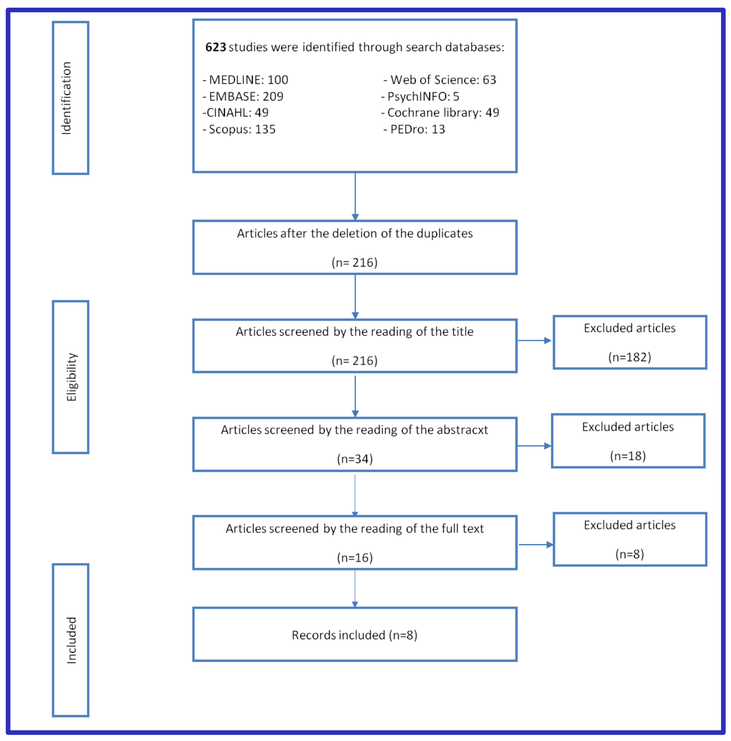
Author and study design	Country	Theme	Scope	Population	Methods	Intervention	Outcome measures	Results	Conclusions
Abdel-Aal et al, 2020 RCT	Egypt	Therapeutic exercise	To study the effect of KT plus home exercise program versus sham KT and the same exercise program.	Obese subjects (BMI> 32) with coccygodynia between 45 and 60 years old.	EG: kinesiotape and exercise. CG: sham kinesiotape and exercise.	EG: pelvic floor, bridging and clamshell exercises, transversus abdominis training, hamstring stretches and treadmill training plus KT. CG: same EG exercises plus shame KT. All types of exercises applied by each patient for three consecutive weeks.	VAS, MMST, ODI.	VAS: 33.07 EG group versus 39.9 CG group (p<0.001). MMST: 6.6 EG group versus 5.8 sham CG group (p<0.001). ODI 8.7 EG group versus 14.4 CG group (p<0.001)	The EG showed a reduction of pain intensity, increase trunk flexion and improvement in activities of daily living.
Wu et al, 2009 Prospective pilot study	China	Manual therapy	Examining the potential usefulness of IRT in the assessment of local physiologic responses before and after conservative therapies for coccygodynia	Patients with a diagnosis of coccygodynia	Prospective data observation	6 to 8 sessions of manual therapy treatments plus short-wave diathermy 3 times a week for 8 weeks.	NPRS, IRT	At 12 weeks, mean NPRS decreased from 6.15 to 2.7 (p<0.05) and mean pericoccygeal surface temperature decreased from 30.16°C to 28.7°C (p<0.05). Significantly marked level of correlation between NPRS improvement and temperature decrease (r=0.67, p<0.01)	The study shows that IRT can objectively proves the decrement of surface temperatures correlating with changes in subjective pain intensity after treatment of coccygodynia
Gori et al, 2012 Case series	Italy	Manual therapy	Consider external manipulation of the coccyx for treatment of patients suffering from disc degeneration coccycodynia.	Patients suffering from disc degeneration coccycodynia for more than 3 months confirmed by radiography.	Short case series data observation.	Five treatments once a week, based on external mobilization of the tip of the coccyx after a pre-treatment of manipulation of the lumbar and thoracic spine	Not specified	Eight treated patients had success at follow-up at 2 and 4 months and a single re-treatment.	Although these data obviously need further confirmation through placebo control and a higher number of patients, this technique may be a useful tool for treatment of chronic disc degeneration coccygodynia.
Maigne et al, 2001 Prospective pilot study	France	Manual therapy	To compare and evaluate the effectiveness analysis of three manual treatments for coccygodynia and identify predictors of good outcome.	Subjects with chronic coccygodynia (for more than 2 months).	Patients were randomized into three groups of 25 patients, each of which received three to four sessions of a different manual therapy treatment.	Group 1 (massage group): massage of the levator anus for 3 minutes each session. Group 2 (mobilization group) Mennel technique followed immediately by Maigne's technique. Group 3 (stretch group) gradual stretching of the levator anus.	VAS	Outcome at 6 months: Massage group: 70.8% failure; 29.2% satisfactory outcome. Mobilization group: 84% failure; 16% satisfactory outcome. Stretch group: 68% failure; 32% satistafctory outcome. (P=0.4)	The results of the manual treatments were satisfactory for 25.7% of the cases at 6 months, and for 24.3% of the cases at 2 years. The results varied with the cause of the coccydynia. There is a need for a placebo-controlled study to establish conclusively whether manual treatments are effective.
Maigne et al, 2006 RCT	France	Manual therapy	To evaluate the efficacy of intrarectal manual treatment of chronic coccydynia; and to determine the factors predictive of a good outcome	Patients with coccygodynia	Patients were randomized into 2 groups of 51 patients. EG: manual therapy. CG: low-power external physiotherapy	EG: three 5-minute sessions of intrarectal manipulation, over a period of 10 days. CG: external shortwave applied to the sacrum at the lowest possible power for three sessions over a period of 10 days	VAS, MPQ, Paris (functional coccydynia impact), and DPQ	At one month: Manipulation group: VAS -34.7%, MPQ -36%, Paris -20%, DPQ -33.8%. Control group: VAS -19.1%, MPQ -7.7%, Paris -20%, DPQ -15.7% (p=0.09,0.03,0.02 and 0.02, respectively)	Coccygeal manipulation may be recommended in the treatment of chronic coccydynia, but its effectiveness is mild.
Khatri et al, 2011 RCT	India	Manual therapy	To evaluate the efficacy of coccyx manipulation in the management of coccydynia.	36 subjects with idiopathic coccydynia aged between 20 and 55 years.	RCT where the subjects were randomly allocated to control and experimental groups.	EG (18): coccyx manipulation plus phonophoresis, TENS and coccygeal pillow. CG (18): subjects treated with phonophoresis, TENS and coccygeal pillow.	VAS and pain free sitting time (minutes).	VAS: reduction of pain by 1.4 ± 1.126 in control and 5.3 ± 1.768 in experimental group (p=0.0001). Average pain free sitting time in control group was 23 ± 13.351 minutes while as it was 47± 7.981 in experimentalgroup (p=0.0002)	Coccygeal manipulation could be of help and can be used as an addition to the conventional physiotherapy treatment in patients with coccygodynia.
Sa'adatu et al, 2016 Case study	India	Manual therapy	To explore the efficacy of manipulation in the management of coccydynia.	38-year-old female patient with coccyx pain for 11 months after a fall on the buttocks.	A case study about a 38 year-old female patient with history of chronic coccyx pain.	Maigne's technique of coccygeal mobilization administered thrice per session, once a week for three consecutive weeks.	VAS, Trunk Mobility Test, ODI.	VAS: 9 on the first day and 0.5 after three weeks. ODI: 70% in the first session and 8% in the third session. Trunk Mobility Test: 11 inches off the floor at first session and touching the floor after treatment.	Maigne's technique of coccygeal manipulation is effective in management of coccydynia and it should be incorporated as one of the treatment modalities for the management of coccydynia.
Scott et al, 2016. Retrospecti ve study	USA	Therapeutic exercise	To evaluate the efficacy of pelvic floor physical therapy for reducing pain levels in patients with coccydynia.	Patients with primary and post-surgery (subgroup) coccyx pain.	Retrospective data observation	Pelvic floor physical therapy aimed at pelvic floor muscle relaxation.	NPRS Patient's subjective percent global improvemen t.	The mean average NPRS decreased from 5.08 to 1.91 (p<0.001). The mean highest NPRS decreased from 8.81 to 4.75 (p<.001). The mean average NPRS in post-surgery improved from 6.64 to 3.27 (p<.001). The mean percent global improvement was 71.9%.	Pelvic floor physical therapy is a safe and effective method of treating coccydynia.

Abbreviations: EG: Experimental Group, CG: Control Group, BMI: Body mass index, VAS: visual analog scale, MMST: Modified-modified Schober test, ODI: Oswestry Disability Index, KT: kinesiotaping, IRT: infrared thermography, NPRS: numeric pain rating scale, NSAIDs: Non-steroidal anti-inflammatory drugs, MPQ: McGill pain Questionnaire, DPQ: Modified Dallas Pain Questionnaire.

RESULTS

623 studies were found, and based on our query, only eight were included (Figure), of which three were experimental and five were observational. Two studies involve therapeutic exercise, and six involve manual therapy. Studies are from 2006 to 2020 (Table). Among the proposed exercises, there are also those for the pelvic floor, which are not invasive and are performed independently by the patient through isometric contractions. The application of kinesiotaping is also considered minimally invasive and is an exteroceptive input for the patient.

Figure. Flow-chart of the study procedures



DISCUSSION

The treatment of coccydynia is an understudied topic, and this scoping review highlights the gaps in knowledge regarding this. From here, the basis could be created for further scientific work and therefore be of help to clinicians who are faced with this problem.

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