

## Remission of Primary Headache Associated With Sexual Activity in a Woman After Chiropractic Spinal Manipulation: A Case Study



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### ABSTRACT

**Objective:** Primary headache associated with sexual activity (PHASA) is rare but recognized by the International Classification of Headache Disorders. Although triptans and indomethacin have been suggested as a pharmacological treatment option for acute treatment, indomethacin can be administered preemptively, and  $\beta$ -blockers has been proposed as a treatment option for prophylactic management, pharmacologic efficacy remains uncertain. Manual therapy for PHASA has not been studied and thus has no scientifically proven effect. The purpose of this case study is to present a successful case of chiropractic care for a patient with PHASA.

**Clinical Features:** This case study presents a case where a 19-year-old white European female student presented to a primary care chiropractic clinic complaining of mainly left-sided intense headache, which had acute onset right before or during orgasm. The patient had never suffered headaches before this, and the intense headache never occurred outside sexual activity nor during intercourse if she did not reach orgasm. The diagnosis of PHASA was later confirmed by a hospital neurologist with extensive experience in headache diagnostics.

**Intervention and Outcomes:** After 7 manual therapy sessions consisting of spinal manipulative therapy at the lumbosacral area conducted by an experienced chiropractor, the patient reported remission of her PHASA, which remained as such at a 12-month follow-up.

**Conclusion:** This case study generates the observational hypothesis that a patient with PHASA may respond to chiropractic spinal manipulative therapy. The underlying mechanisms for this symptom amelioration are, however, unclear. (*J Chiropr Med* 2020;19:96-100)

**Key Indexing Terms:** *Headache Disorders, Primary; Headache; Migraine; Sexual Activity; Orgasm; Chiropractic; Manual Therapies; Manipulation Therapy*

### INTRODUCTION

Recurrent headache disorders, including migraine, are the leading cause of disability worldwide.<sup>1,2</sup> Unlike many other recurrent episodic or chronic diseases, the morbidity attributable to headache disorders is largely concentrated in otherwise healthy young and middle-aged people,

particularly women aged 15 to 44 years.<sup>1</sup> The burden of headache is arguably underestimated and believed to be underrecognized and undertreated.<sup>3</sup>

Primary headache associated with sexual activity (PHASA) is rare but recognized by the International Classification of Headache Disorders (ICHD-III) (Fig 1).<sup>4</sup> One Danish population-based study found that the lifetime prevalence of PHASA was 1%,<sup>5</sup> and up to 40% of all cases run a chronic course over more than a year.<sup>5</sup> The mean age at onset has been reported at 35 years of age, with a male-to-female ratio at 3:1.<sup>6</sup> Comorbid migraine, benign exertional headache, and tension-type headache has also been present in 25%, 29%, and 45% percent of participants in a German study, respectively.<sup>6</sup>

After neurovascular lesions have been excluded, triptans and indomethacin have been suggested as a pharmacological option for acute treatment, indomethacin can be administered preemptively, and  $\beta$ -blockers has been proposed for prophylactic management, and desisting from sexual activity also

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**Diagnostic Criteria for primary headache associated with sexual activity according to ICHD III [4]:**

**Previously used terms include:** *Benign sex headache; benign vascular sexual headache; coital headache; coital cephalalgia; intercourse headache; orgasmic headache; orgasmic cephalalgia; sexual headache.*

- A. At least two episodes of pain in the head and/neck fulfilling criteria B-D.
- B. Brought on by or occurring only during sexual activity.
- C. Either or both of the following: 1) Increasing in intensity with increasing sexual excitement. 2) Abrupt explosive intensity just before or with orgasm.
- D. Lasting from 1 minute to 24 hours with severe intensity and/or up to 72 hours with mild intensity.
- E. No better accounted for by another ICHD-III diagnosis.

**Fig 1.** Diagnostic criteria for primary headache associated with sexual activity according to ICHD III.<sup>4</sup> ICHD III, International Classification of Headache Disorders, 3rd Edition.

has been recommended.<sup>5</sup> We are not aware of any studies suggesting that manual therapy might be effective for PHASA; however, 2 systematic reviews suggest that manual therapy may be effective in other primary headache disorders, that is, migraine and chronic tension-type headache, respectively.<sup>7,8</sup>

The purpose of this case study is to describe care for a patient with PHASA.

#### CASE REPORT

This case study presents a case of a 19-year-old white European female student who presented to a primary care chiropractic clinic complaining of mainly left-sided temporal, frontal, and orbital intense headache, which had acute onset right before or during orgasm. The patient presented to the clinic in June 2017, 6 months after her headache onset. She had never suffered headaches before this, and the intense headache never occurred outside sexual activity nor during intercourse if she did not reach orgasm. The patient had her sexual debut at age 14, but had refrained from sexual activity until she turned 18 years of age. The patient reported having sex every other day, usually reaching orgasms. The intense headache during orgasm was reported at 9 of 10 on the numeric rating scale (NRS), peaking the first minutes, before it quickly reduced to 6 of 10 on the NRS the following minutes, but then often lasting 48 to 72 hours. It was never associated with nausea, photophobia, or phonophobia or other associated symptoms. The patient took 600 mg of ibuprofen for pain relief during headache attacks, administered directly after orgasm, but with no effect other than it helped her sleep better. The patient was a nonsmoker, and no regular medication other than oral contraceptive pills (Microgynon, Bayer) was reported. There were no reports of previous traumas and no known family medical history of illness or headache disorders, and she presented herself as fit and healthy. The patient had not previously sought help from other manual therapies or her general practitioner before seeking care at

the chiropractic clinic, which diagnosed the patient with PHASA. The diagnosis was later confirmed by a hospital neurologist with extensive experience in headache diagnostics. The fact that the patient did not seek help from any other health care provider may have led to a diagnostic delay.

The chiropractic examination revealed decreased range of motion at the lower lumbar section and right sacroiliac joint, but with negative intervertebral foramen compression and neural tension test bilaterally. Results of motor function (L2-S1), deep tendon reflex (L3-S1), and dermatome (L2-S1) were all normal and symmetrical. Results of cranial nerve testing II to XII was normal and symmetrical, and Romberg's test was normal with open and closed eyes. Thus, spinal examination only revealed segmental joint dysfunction with decreased joint play, edema, and tenderness at the motion segment L5/S1 and at the right sacroiliac joint. The neurologist at the hospital did not request further radiological examinations or blood sample tests.

Manual treatment was performed by an experienced chiropractor using the Gonstead method, that is, a specific contact using the Gonstead listing system,<sup>9</sup> high-velocity, low-amplitude, short lever, with no recoil postadjustment directed to spinal biomechanical dysfunctions diagnosed by standard chiropractic tests.<sup>9</sup> A total of 9 visits over 3 months were scheduled, where the sixth and seventh visits were exclusively for another complaint unrelated to the primary complaint, that is, unrelated ankle problem where the patient herself contacted the clinic to make an appointment. Outcome measures were recorded by the patient reporting retrospectively before the interventions on number of headache days, pain intensity, and headache duration. Follow-up recordings were done through telephone interview (Table 1). All adverse events (AEs) were recorded throughout the treatment period. Adverse events were classified as mild, moderate, or severe, and transient and included local tenderness in the area treated and tiredness on the day of treatment. No moderate or severe or serious AEs were reported in this case study.<sup>10</sup> The patient was advised to

**Table 1.** Results of Manual Therapy Intervention

	Baseline	3-Mo Follow-up	6-Mo Follow-up	12-Mo Follow-up
Headache, days (d/mo)	30 d/mo	0	10	0
Headache intensity NRS (0-10)	9 out of 10 $\leq 2$ min, 6 out of 10 $> 2$ min to 72 h	0	0.5/10	0
Headache duration (0-24 h)	48-72 h	0	$\leq 2$ min	0
Medication	600 mg of ibuprofen administered immediately after each headache attack	None	None	None

NRS, numeric rating scale.

avoid sexual activity involving intercourses that lead to orgasm the first 3 weeks after the first consultation. There is no research suggesting avoiding sexual activity will benefit patients with PHASA; however, in 1 case series, the advice to engage in sexual intercourse less strenuously resulted in an apparent reduction in headaches.<sup>11</sup>

The initial 2 interventions, spread over 10 days, concentrated itself on biomechanical dysfunction at the lumbar vertebrae L5 to increase range of motion and decrease point tenderness. At the third visit, scheduled 2 weeks postbaseline, the function of L5 was improved and the focus was now directed at improving the function of the right sacroiliac joint. No headache was reported during this 2-week period. After the third visit, the patient was asked to return to normal sexual activity to evaluate the treatment effect, that is, 1 week earlier than initial recommended. A follow-up visit was scheduled in 2 weeks, that is, 4 weeks post-baseline. On this fourth visit, the patient reported that she had experienced multiple orgasms without any headache. A fifth follow-up visit was scheduled 7 weeks postbaseline. Upon the fifth visit, the function of the right sacroiliac joint was somewhat improved, but again manually treated, and the patient was now convinced that the treatment was effective, as she had been headache free for 30-days, despite having multiple orgasms more than half of the month. The patient was again recommended to carry on as normal. The next follow-up visit (sixth visit) was scheduled 13 weeks postbaseline. The patient contacted the clinic prior to her scheduled follow-up visit because of an ankle problem that was unrelated to the primary complaint. The sixth and seventh visits were concerned with treating the talocrural joint with extremity joint manipulation to restore dorsiflexion and ameliorate ankle pain. An eighth control follow-up visit was then scheduled 3 months after. The patient did, however, come in earlier because she had experienced a tendency of short-lasting ( $< 2$  minutes) headache rated as 0.5 of 10 on the NRS during 10 orgasms, which started approximately 24 weeks after the initial consultation. According to the patient, the headache was insignificant and there was no need for 600 mg of ibuprofen. Upon examination, there was slight decreased function of the right sacroiliac joint, for which a single manipulative treatment was initiated, with a follow-up control visit 8 days

later. On the ninth visit, 31 weeks after the initial consultation, the patient had been symptom free and had not experienced any headache upon orgasm. The right sacroiliac joint was, however, adjusted again owing to slight dysfunction upon palpation. No follow-up visit was subsequently scheduled.

Mild and transient ( $< 24$  hours) local lumbosacral tenderness and tiredness on the treatment day was reported as an AE after the first 2 sessions. No moderate/severe or serious AEs were reported.

The patient gave oral and written consented for this study and agreed to be contacted by phone for outcome details at follow-up timepoints. The patient reported complete resolution of PHASA at 12 months' follow-up with normal frequent sexual activity during this time.

## DISCUSSION

To our knowledge, this is the first-ever case study to present a successful manual therapy treatment for PHASA, which sustained in remission at 12 months' follow-up. Manual therapy is common in Norway, and the profession is included in the primary health care team for musculoskeletal disorders. A recent Norwegian population study found that 52% had tried physiotherapy and 28% had tried chiropractic care for their headaches.<sup>12</sup> Headache disorders are the second most common complaint patients seek care for in manual therapy private clinics next to common musculoskeletal spinal problems.

According to the literature, the only acute treatment options for PHASA are triptans or indomethacin, where indomethacin can be used preemptively and  $\beta$ -blockers can be used for prevention.<sup>13-15</sup>

Pharmacologic management in the acute and preventive stage is scarce and is mainly based on case series,<sup>4</sup> case studies, and the experience or judgment of the individual general practitioner or neurologist. Thus, despite the severe psychosocial disability for the individual and their relationship, the diagnosis seems to be underrecognized in terms of research interests and thereby undertreated.

When making the diagnosis of PHASA, it is important to know that PHASA is not associated with disturbance of

consciousness; vomiting; or visual, sensory, or motor symptoms; whereas sexual headache with an underlying pathological cause may be. Upon the first onset of headache with sexual activity, it is mandatory to exclude subarachnoid hemorrhage, intracranial and extracranial arterial dissection, and reversible cerebral vasoconstriction syndrome.<sup>16</sup> Primary headache associated with sexual activity should, however, always be related to the frequency of sexual activity.<sup>4</sup> Our patient had not sought help for her headache complaint prior to seeing us, and she had been experiencing these headaches for at least 6 months prior to contacting the clinic. She had never suffered headaches prior to this, and the intense headache never occurred outside sexual activity nor during intercourse if she did not reach orgasm. Importantly, when considering the diagnosis, she did not report any symptoms related to disturbance of consciousness; vomiting; or visual, sensory, or motor symptoms, suggesting that her PHASA could have been of pathologic origin. Referring similar patients like ours to a neurologist with experience in headache diagnostics is important for ruling out other differential diagnoses with potential pathologic cause.

The underlying mechanisms for how this patient responded to chiropractic care are unclear. But this should be implicit, since the underlying pathophysiological cause of PHASA also is unknown. An observational study found that sexual activity can lead to partial or complete relief of headache in some patients with migraine and a few cluster headache patients.<sup>17</sup> Avoiding sexual activity in the initial 3 weeks of treatment could have contributed to a headache reduction, as this is one of the suggested therapy modalities recommended by neurologists.

Research has argued that manual therapy, and especially manipulation, may stimulate neural inhibitory systems at different spinal cord levels, because it might activate various central descending inhibitory pathways.<sup>18</sup> However, a definitive mechanism is highly premature and speculative considering the current scientific evidence. Setting the plausible mechanisms aside, research has shown that a minority of chiropractic patients report having positive nonmusculoskeletal reactions after spinal manipulative therapy, and these patients often report definite improvement after chiropractic care, and very few report definite worsening.<sup>19,20</sup>

### Limitations and Future Recommendations

Case studies are important in developing clinical knowledge and generating inductive hypotheses. There are several limitations in this report, and the results of a case report may not be generalizable; improvement may have occurred by chance; psychological factors and stress might have played a part; and the avoidance of sexual activity with orgasm might all have played a part in the effect. Although the patient denied overuse, a possible confounder

relates to pharmacologic management and medication-overuse headache, which might have been relevant for this particular patient as she continued to pursue orgasms with subsequent administration of ibuprofen significantly more often than the limitation allows for, that is, <15 days per month.<sup>6</sup>

### CONCLUSION

This case study presents a successful manual therapy treatment for PHASA, which sustained in remission effective at 12 months' follow-up. Further studies should focus on pathophysiology for PHASA; pharmacologic treatment options; and direct treatment effect from prospective large-scale manual therapy randomized controlled trials, preferably including a naive manual placebo group.

### FUNDING SOURCES AND CONFLICTS OF INTEREST

No funding sources or conflicts of interest were reported for this study.

### CONTRIBUTORSHIP INFORMATION

Concept development (provided idea for the research): A.C.  
Design (planned the methods to generate the results): A.C.  
Supervision (provided oversight, responsible for organization and implementation, writing of the manuscript): A.C., O.S.

Data collection/processing (responsible for experiments, patient management, organization, or reporting data): A.C., O.S.

Analysis/interpretation (responsible for statistical analysis, evaluation, and presentation of the results): A.C., O.S.

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Writing (responsible for writing a substantive part of the manuscript): O.S.

Critical review (revised manuscript for intellectual content, this does not relate to spelling and grammar checking): A.C., O.S.

### Practical Applications

- The underlying pathophysiological cause of primary headache associated with sexual activity is unknown, and pharmacologic management in the acute and preventive stage are scarce.
- To our knowledge, this is the first-ever case study to present a successful manual therapy treatment for primary headache associated

with sexual activity, which also sustained in remission at 12 months' follow-up.

- The underlying mechanisms for how is unclear, and a plausible mechanism is highly premature and speculative considering the current scientific evidence

## REFERENCES

1. Burch R, Rizzoli P, Loder M. The prevalence and impact of migraine and severe headache in the United States: figures and trends from government health studies. *Headache*. 2018;58(4):496-505.
2. Vos T, Allen C, Arora M, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. *Lancet*. 2016;388(10053):1545-1602.
3. Jensen R, Stovner LJ. Epidemiology and comorbidity of headache. *Lancet Neurol*. 2008;7(4):354-361.
4. Headache Classification Committee of the International Headache Society (IHS). The International Classification of Headache Disorders, 3rd Edition. *Cephalalgia*. 2018;38(1):1-211.
5. Rasmussen BK, Olesen J. Symptomatic and non-symptomatic headaches in a general population. *Neurology*. 1992;42(6):1225-1231.
6. Frese A, Eikermann A, Frese K, et al. Headache associated with sexual activity: demography, clinical features, and comorbidity. *Neurology*. 2003;61(6):796-800.
7. Chaibi A, Tuchin PJ, Russell MB. Manual therapies for migraine: a systematic review. *J Headache Pain*. 2011;12(2):127-133.
8. Chaibi A, Russell MB. Manual therapies for primary chronic headaches: a systematic review of randomized controlled trials. *J Headache Pain*. 2014;15:67.
9. Cooperstein R. Gonstead Chiropractic Technique. *J Chiropr Med*. 2003;2(1):16-24.
10. National Institutes of Health. Adverse Events and Serious Adverse Events Guidelines. U.S. Department of Health & Human Sciences. Available at: <https://www.nia.nih.gov/research/dgcg/clinical-research-study-investigators-toolbox/adverse-events>.
11. Paulson GW, Klawans Jr HL. Benign orgasmic cephalalgia. *Headache*. 1974;13:181.
12. Kristoffersen ES, Grande RB, Aaseth K, et al. Management of primary chronic headache in the general population: the Akershus study of chronic headache. *J Headache Pain*. 2012;13(2):113-120.
13. Frese A, Gantenbein A, Marziniak M, et al. Triptans in orgasmic headache. *Cephalalgia*. 2006;26(12):1458-1461.
14. Frese A, Rahmann A, Gregor N, et al. Headache associated with sexual activity: prognosis and treatment options. *Cephalalgia*. 2007;27(11):1265-1270.
15. Evans RW, Pascual J. Expert opinions: orgasmic headaches: clinical features, diagnosis, and management. *Headache*. 2000;40(6):491-494.
16. Chaibi A, Russell MB. A risk-benefit assessment strategy to exclude cervical artery dissection in spinal manual-therapy: a comprehensive review. *Ann Med*. 2019;51(2):118-127.
17. Hambach A, Evers S, Summ O, et al. The impact of sexual activity on idiopathic headaches: an observational study. *Cephalalgia*. 2013;33(6):384-389.
18. Vigotsky AD, Bruhns RP. The role of descending modulation in manual therapy and its analgesic implications: a narrative review. *Pain Res Treat*. 2015;2015: 292805.
19. Leboeuf-Yde C, Axén i, Ahlefeldt G, et al. The types and frequencies of improved nonmusculoskeletal symptoms reported after chiropractic spinal manipulative therapy. *J Manipulative Physiol Ther*. 1999;22(9):559-562.
20. Leboeuf-Yde C, Pedersen EN, Bryner P, et al. Self-reported nonmusculoskeletal responses to chiropractic intervention: a multinational survey. *J Manipulative Physiol Ther*. 2005;28(5):294-302. discussion 365-366.