Management of Persistent Postpartum Pelvic Pain

Yoram A. Weil, MD, Christian Hierholzer, MD, Domenico Sama, MD, Christopher Wright, BS, Markku T. Nousiainen, MD, FRCS(C), Peter Kloen, MD, and David L. Helfet, MD

Abstract

Persistent postpartum pelvic pain is an uncommon but disabling disorder. Although symptoms resolve spontaneously in the majority of cases, some carefully selected women with this chronic condition might benefit from surgical stabilization of the pelvic ring.

We retrospectively studied 19 patients whose persistent postpartum pelvic pain was treated at our center. Although most patients were successfully treated nonoperatively, 6 (31.5%) underwent surgery because of symptoms persisting more than 1 year. Imaging studies, including magnetic resonance imaging, were used to assess the extent and the nature of the lesion before surgery. Eleven patients had degenerative changes in the anterior pelvic ring; the other 8 patients had degenerative sacroiliac joint changes. Surgical procedures included resection of the diseased fragment, anterior symphyseal plating, and bone grafting with and without posterior ring stabilization. For all patients, mean Majeed outcome score was 85 (range, 46-100). No significant difference in outcomes was found between the surgically treated patients and the nonoperatively treated patients.

Dr. Weil is Attending Orthopedic Surgeon, Hadassah Hebrew University Hospital, Jerusalem, Israel.
Dr. Hierholzer is Attending Orthopedic Surgeon, BG-Unfallklinik Murnau, Murnau, Germany.
Dr. Sama is Attending Orthopaedic Surgeon, Orthopaedic and Trauma Unit, Vignola Civil Hospital, Modena, Italy.
Mr. Wright is PGY-2 Medical Student, New Jersey Medical School, Newark, New Jersey.
Dr. Nousiainen is Attending Orthopaedic Surgeon, Holland Orthopaedic and Arthritic Centre, Sunnybrook Health Sciences Centre, Toronto, Canada.
Dr. Kloen is Attending Orthopedic Surgeon, Department of Orthopaedic Surgery, Academic Medical Center, Amsterdam, Netherlands.
Dr. Helfet is Professor of Orthopaedic Surgery, Weill Medical College of Cornell University, New York, New York, and Director, Orthopaedic Trauma Service, Hospital for Special Surgery and New York Presbyterian Hospital, New York, New York.

Address correspondence to: David L. Helfet, MD, Department of Orthopaedic Surgery, Weill Medical College of Cornell University, Hospital for Special Surgery, 535 E 70th St, New York, NY 10021 (tel, 212-606-1888; fax, 212-628-4473; e-mail, helfetd@hss.edu).

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Chronic postpartum pelvic and back pain is an uncommon but disabling entity. Its true etiology and incidence remain unclear and vary considerably with ethnic and cultural backgrounds.[1] In addition, the specific distinction between postpartum lumbar back pain and pelvic pain can be difficult to make at times.[1,2] Possible etiologic and inciting factors for postpartum pelvic pain include protracted delivery, epidural anesthesia, history of previous back pain,[2,3] muscle weakness,[4] and excessive pelvic relaxation secondary to increased levels of the hormones progesterone and relaxin during delivery, leading to acute pathologic separation of the symphysis pubis and posterior sacroiliac (SI) ligament insufficiency.[5-17]

"With use of these [nonoperative treatment options], the vast majority of patients' symptoms resolve within 1 year."

Several treatment options for chronic postpartum pelvic and back pain have been suggested.[5] These range from psychosocial intervention,[2] bed rest, use of pelvic binders,[7,12,13] and general physiotherapy to specific pelvic girdle exercises.[2,4] With use of these modalities, the vast majority of patients' symptoms resolve within 1 year.[1-3] Surgical treatment is infrequently recommended in recalcitrant cases of this condition. Various procedures, including resection of the symphysis pubis with or without subsequent symphyseal plating and/or posterior fixation (including either percutaneous SI joint fixation or formal SI joint or lumbopelvic fusion), have been suggested.[5,18-21] The outcome of these options varies; some authors suggest complete relief of symptoms, whereas others do not.[5,18-21]

In this article, we report on our retrospective study of the long-term functional results of treating 19 cases of chronic postpartum pelvic pain (6 surgical cases, 13 nonoperative cases) and propose a treatment algorithm for managing this clinical entity.

Patients and Methods

Study Population

The study population consisted of 19 consecutive patients with postpartum pelvic pain treated at Dr. Helfet's institution

Table I. Clinical Outcome of Surgical and Nonoperative Patients With Postpartum Pelvic Pain

Patient	Age (y)	Majeed Score	VAS Score	Surgery (Yes/No)	Follow-Up (y)	Procedure
1	48	100	1	No	11	
2	45	65	5	No	9	
3	49	100	1	No	11	
4	46	100	1	No	4	
5	46	91	2	No	11	
6	41	56	7	No	10	
7	46	100	1	No	11	
8	41	100	1	No	4	
9	50	86	6	No	9	
10	43	100	1	No	4	
11	43	100	1	Yes	10	Symphyseal plating
12	47	99	1	Yes	5	Symphyseal fusion + sacroiliac screw
13	43	83	5	Yes	3	Symphyseal fusion + sacroiliac screw
14	39	46	5	Yes	4	Symphyseal plating + misplaced screw, removal
15	46	89	1	Yes	11	Wedge resection of pubis
16	45	53	5	Yes	9	Sacroiliac + symphyseal fusion
Mean		**85±19.3**	**2.75±2.3**		**7.8**	
Range		**46-100**	**1-7**		**3-11**	

Abbreviation: VAS, visual analogue scale.

between 1994 and 2002. Inclusion criteria were pain starting during the peripartum period, within 24 hours after delivery; pain lasting more than 6 months after delivery; pain severely affecting activities of daily living; and a minimum follow-up of 1 year after treatment at our institution. Mean patient age at presentation was 34 years (range, 24-41 years), mean duration of symptoms was 20 months (range, 6 months–9 years), and mean follow-up was 7.8 years (range, 3-11 years).

Tables I and II list the obstetric data collected from patient charts representing the history reported by patients in our clinic. Seventeen patients had anterior pain in the area of the symphysis pubis or groin starting immediately during delivery. One patient had anterior pain during the second trimester of pregnancy and was clinically diagnosed with symphyseal diastasis. Eleven patients also had posterior pelvic pain in the buttock or SI joint. Only 1 patient had isolated posterior pelvic pain (shortly after undergoing cesarean delivery). Eight patients reported significant limping or difficulty walking.

Data Collection

Data were retrospectively gathered from patient charts, clinic visit records, follow-up telephone calls, and diagnostic imaging studies, including radiographs, computed tomography (CT) images, and magnetic resonance (MR) images. Minimum follow-up was 3 years (range, 3-11 years). Patient charts and a computerized trauma database were used for data collection.

Follow-up questionnaires were administered by telephone. Collected data included Majeed pelvic outcome scores[22] and visual analogue scale (VAS) scores.

Radiographic Analysis

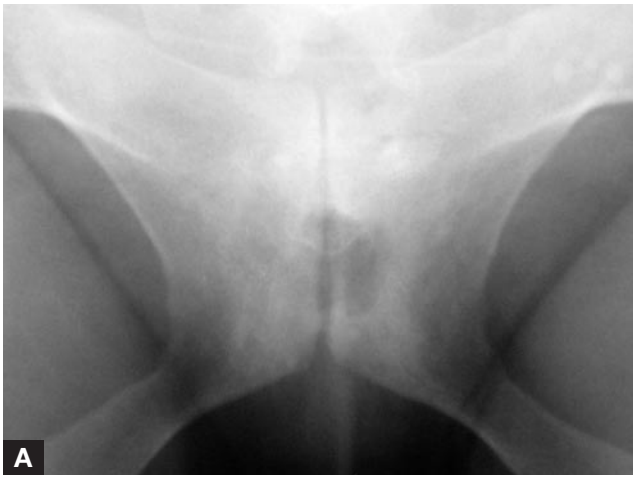
Plain anteroposterior, inlet, and outlet pelvic radiographs were analyzed. Pelvic and lumbar spine CT and MR images, obtained when radiographs did not provide significant findings, were analyzed for degenerative joint changes in the symphysis pubis, SI joints, and any pathology in the lumbar spine. On plain radiographs, symphysis pubis arthritis and degenerative SI joint arthritis were graded from 0 to 4 according to modified New York criteria[23]; on MR images, similar criteria were used to assess SI joint degenerative changes.[24] Sixteen patients were available for analysis. Plain radiographs were analyzed by a fellowship-trained orthopedic trauma surgeon, and MR images were interpreted by a musculoskeletal radiologist. Patients with posterior pelvic pain and equivocal findings underwent a CT-guided SI joint injection to confirm the joint as a pain generator.

Nonoperative Treatment

All patients with pelvic pain were treated nonoperatively within 1 year after symptom onset, either before or after referral to our center. Treatment included physiotherapy, which involved gait training and pelvic floor–strengthening exercises. An anti-inflammatory medication, either oral indomethacin 25 mg 3 times a day or celecoxib 200 mg 1 or 2 times a day, was prescribed for at least 1 month. Pelvic binders were not used.

Surgery

When symptoms were not alleviated by nonoperative means after 1 year, surgery was recommended. Mean time from symptom onset to surgery was 3.3 years (range, 1-9 years). For patients with anterior pelvic pain only, either symphyseal wedge resection or fusion with allograft and anterior plating through a Pfannenstiel approach was performed (Figures 1A, 1B). For patients with anterior and posterior pelvic pain, anterior fusion and plating and percutaneous SI joint fixation with cannulated screws,



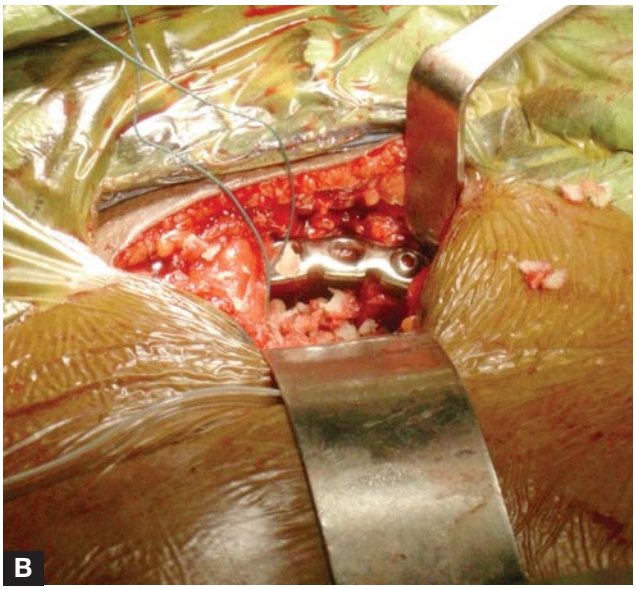


Figure 1. (A) Preoperative radiograph of symphysis of patient with chronic anterior pelvic pain several years after labor. Note cysts, sclerosis, and joint-space narrowing. (B) Intraoperative photograph shows resected symphysis with bone graft (autogenous) and plate in place.

as described by Routt and colleagues,[25] were performed. Posterior stabilization was planned only for when symptoms at the SI joint corresponded with degenerative changes on MR images. In equivocal cases, CT-guided injection into the SI joint provided further diagnostic aid. A formal SI joint fusion was performed in 1 case in which significant SI joint arthritis was found clinically and radiographically. An anterior ilioinguinal approach to the SI joint was used, and the joint space was exposed, curetted and débrided, and fused by insertion of 2 percutaneous SI screws through 2 lateral stab wounds..

After surgery, all cases were limited to 20-pound weight-bearing on the affected extremity. Once clinical and radiologic evidence of healing across the symphysis or SI joints was determined (usually between 6 and 12 weeks), patients were allowed to progressively weight-bear and increase their physiotherapy routine.

Outcome

Outcome was determined by patient's complaint of pain, walking ability, and ability to perform activities of daily living. Majeed outcome score,[20] a functional patient-reported score designed for patients with pelvic fractures, was used to assess functional outcome (0, worst; 100, best). VAS score was used to assess pain (range, 1-10).

Statistical Analysis

The Mann-Whitney U nonparametric test was used to compare outcomes between surgical and nonoperative treatment. SPSS software (version 11) was used for statistical analysis. $P<.05$ was considered statistically significant.

Results

Outcome

Of the 13 patients treated nonoperatively, 12 had significant or complete resolution of symptoms within 1 year (mean, 4 months; range, 2-12 months). Three patients were lost to follow-up.

Six patients underwent surgery. The first patient in the series was treated with symphyseal wedge resection without internal fixation. Two patients underwent symphyseal fusion, which involved plate fixation with a 3.5-mm pelvic reconstruction plate and insertion of bone allograft (Grafton; Osteotech, Eatontown, NJ) or autogenous bone graft, taken from the resected pubis (Figures 2A, 2B). Two patients underwent symphyseal fusion with anterior plate fixation and bone grafting and posterior percutaneous SI joint fixation (7.3-mm cannulated screw into S1 body). The sixth patient underwent symphyseal and SI joint fusion, which involved anterior joint débridement and insertion of 2 percutaneous SI screws (1 into S1 body, 1 into S2 body; Figures 2A, 2B). No hardware failure or loosening was observed.

Overall mean Majeed score was 85. The difference between mean scores for surgical patients (81.3) and nonoperative patients (86.7) was not statistically significant.

Two surgical patients had scores significantly lower than the mean. At an outside institution, patient 14's iliosacral screw was malpositioned, which led to L5 nerve root injury and, at our institution, screw removal and new screw placement; symptoms were chronic and did not resolve. Patient 16 underwent SI joint fusion but had another distal femoral

Table II. Obstetric Information Regarding Patients With Pelvic Pain

Obstetric Information	No. Cases
Normal vaginal delivery	9
Protracted and/or instrumented delivery	3
Gestational diabetes with macrosomia (weight, >4 kg)	2
Twins or triplets	4
Cesarean delivery	1

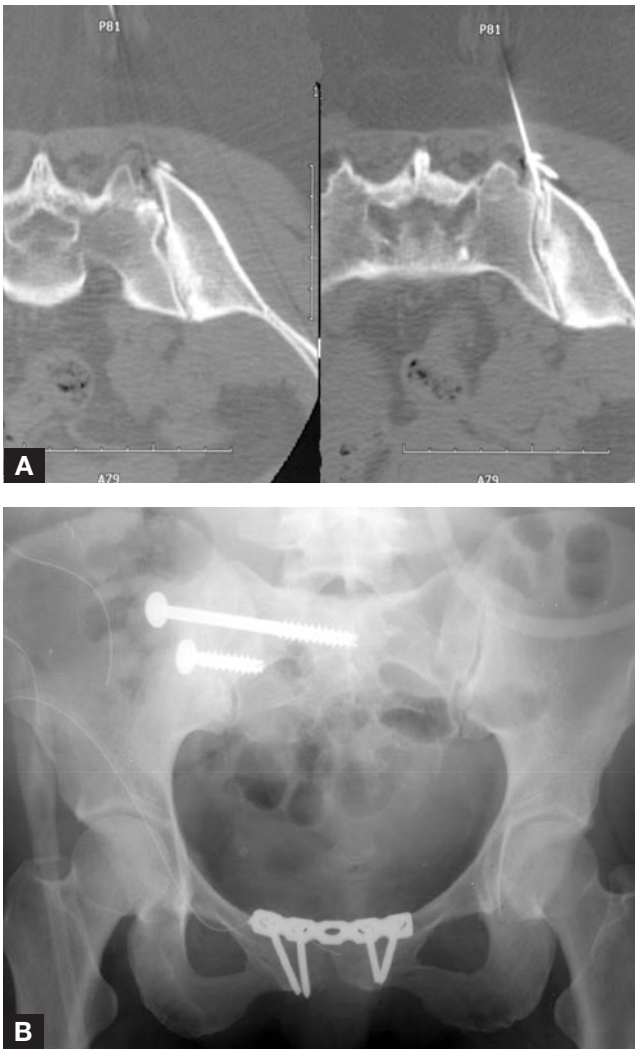


Figure 2. (A) Thirty-eight-year-old patient with chronic symphyseal and posterior pelvic pain 9 years after delivery. Although plain radiographs show no significant pathology, magnetic resonance imaging reveals significant degenerative joint disease. Computed-tomography–guided injection into sacroiliac joint provided temporary pain relief. (B) Symphyseal fusion and formal sacroiliac fusion with placement of 2 screws through anterior approach.

fracture and malunion, which led to posttraumatic knee arthritis and then treatment at an outside hospital. Not counting these 2 patients, mean score for all surgical patients was 92.8. Complaints in the 2 failed-treatment cases were related to the posterior pathology only; no failure of anterior fixation or hardware removal was required.

Radiographic Analysis

Radiographic findings included symphyseal degenerative changes in 11 patients. MR images showed degenerative changes (bone edema, cysts, cartilaginous damage) of the SI joints in 8 patients. Radiographic grading is further described in Table III.

Treatment Algorithm

Our results suggest a treatment algorithm (Figure 3).

Discussion

We have described a series of 19 patients with chronic postpartum pelvic pain—and the long-term follow-up available on 16 of these patients. Most of these patients began having anterior and posterior pelvic pain during or shortly after labor. The majority of patients experienced symptom relief with nonoperative treatment, which included physiotherapy and use of nonsteroidal anti-inflammatory drugs (NSAIDs). Of the 6 patients who required surgery, 4 experienced complete or nearly complete resolution of symptoms. Mean Majeed outcome score for both surgical and nonoperative patients was higher than 80.

The clinical entity of postpartum pelvic pain has been reported in the literature many times. Incidence of such pain ranges from 1/300 to 1/30,000 deliveries.[8] Most reports note pathologic pelvic separation of the symphysis pubis immediately after labor[8-17]; the majority of patients respond well to nonoperative modalities. Different conservative treatment modalities have been described; these include bed rest, physiotherapy, and use of pelvic binders. One study reported significant improvement with a pelvic-muscle–strengthening regimen[4]; another series failed to demonstrate any difference between several physiotherapy regimens resulting in improvement in all patients.[2] In our series, patients were treated with a combination of NSAIDs and physiotherapy, resulting in improvement in most instances. Evidence of an inflammatory process in the symphysis pubis during relaxation in pregnancy[26] might help explain the degenerative changes occurring later in the course of unresolved cases and might explain the efficacy of anti-inflammatory drugs in treating this condition.

Patients who did not respond to nonoperative therapy in our series were treated surgically. The literature on surgical management of this condition is sparse,[5,21] and such management more commonly involves stabilization only of the posterior pelvic ring.[19-21]

In our series, radiographic changes were more prominent in the anterior pelvic ring (11 patients) than in the

Table III. Degenerative Changes at Latest Follow-Up (or Before Surgery)

	Grade					
Changes	0	1	2	3	4	Total (>0)
Symphyseal (plain radiographs)	4	2	4	5	0	11 (58%)
Sacroiliac joint (MRI/CT)	3	1	3	4	0	8 (42%)

Abbreviations: MRI, magnetic resonance imaging; CT, computed tomography.

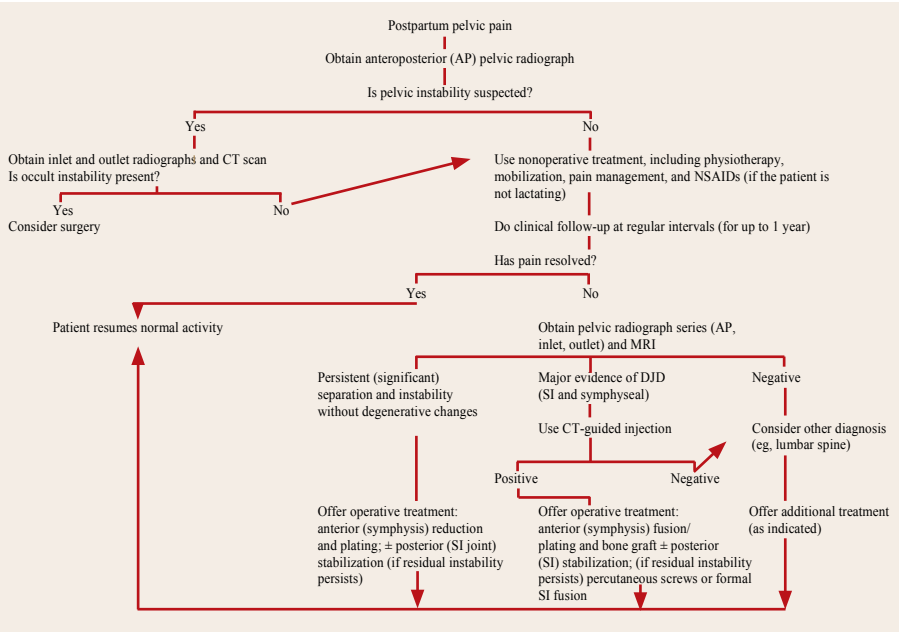


Figure 3. Treatment algorithm for chronic pelvic pain postpartum.
Abbreviations: AP, anteroposterior; CT, computed tomography; DJD, degenerative joint disease; MRI, magnetic resonance imaging; NSAIDs, nonsteroidal anti-inflammatory drugs; SI, sacroiliac.

posterior ring (8 patients). Whether posterior instability was caused by a direct injury to the SI joint ligament or resulted from chronic anterior stability, we treated it according to symptom severity, presence of MRI changes, and positive response to CT-guided injection. Options for posterior pelvic stabilization include percutaneous fixation with iliosacral screws,[6] anterior SI joint fixation,[27] and triangular spinopelvic fixation.[18]

the time. However, these dynamic testing modalities should be considered in more acute cases when the diagnosis is in doubt—we believe that these modalities are important in establishing the diagnosis in earlier stages of the disease, as recent findings have suggested.[28]

The first patient in our series underwent a wedge resection of the pubic ramus. This treatment has been recommended in a case series[20] of 10 patients. Longer follow-up on 3 patients treated in this fashion revealed a relapse of symptoms and chronic pain. Although our first patient had a satisfactory outcome, we abandoned this technique and turned to symphyseal plating and bone grafting. Subsequently, anterior pelvic pain relief was more predictable—which is supported by several reports.[5,18,27]

Shortcomings of our study include use of different surgical strategies on a small number of patients with varied pathology. Two (33%) of the 6 patients who underwent surgery did not respond well to it, but their responses can be attributed to misplaced hardware (one patient) and the surgical technique of wedge resection (the other patient). We believe that, in selected cases and with use of proper surgical techniques, these results can be improved, as was demonstrated in the other cases in our series. It also should be emphasize that, because of the rarity of operative indications for this condition, the patients were referred to us over a long period in which our techniques were evolving considerably. In addition, these patients were referred to our clinic after initial therapy ranging in duration from 6 months to 9 years—creating a selection bias toward more recalcitrant cases.

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All authors using these modalities have reported marked pain relief. Given our reported cases, we believe it is beneficial to use a trial of percutaneous SI fixation when there are posterior symptoms, corresponding radiographic changes, and a positive response to CT-guided injection. Formal SI joint fusion should be reserved for cases in which there are severe clinical and radiographic degenerative changes in the SI joint. Although not validated statistically, our impression is that, when posterior symptoms are involved, pain relief and resolution are less predictable.

Although our patients with chronic symptoms in the anterior and posterior pelvic ring had some degree of instability, dynamic testing (eg, single-leg-stance films or cine fluoroscopy) was not performed because, by the time patients were referred to us, their symptoms were chronic, and degenerative changes were present more than 50% of

Chronic postpartum pelvic pain is a difficult clinical entity to treat. Most cases successfully respond to conservative modalities; the rest require surgery. Surgical approach and fixation technique should be dictated by clinical and radiographic findings.

Authors' Disclosure Statement

The authors report no actual or potential conflict of interest in relation to this article.

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