Chronic pelvic pain as a somatoform disorder

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Abstract: BACKGROUND: The purpose of this study was to determine whether psychiatric disturbances, particularly somatization, and an increased number of traumatic and critical life events, which have been found in women with idiopathic chronic pelvic pain (ICPP), can also be observed in women with chronic pelvic pain and abdominal adhesions (ACPP). METHODS: Forty women who underwent diagnostic laparoscopy were subdivided into three groups according to blind rated somatic pathologies: ICPP patients (n = 16), ACPP patients (n = 10), infertile controls without pain (n = 14). Besides the standardized assessment of DSM-III-R diagnosis, questionnaires and semistandardized interviews were used to estimate depression, somatization, pain, the prevalence of sexual and physical abuse, and the number of critical life events. RESULTS: Diagnostic criteria for somatoform pain disorder were fullfilled in 73.3% of the ICPP patients, 60% of the ACPP patients and none of the controls. With respect to the somatization symptom checklist the two pain groups scored significantly higher than the controls (p < 0.05). Referring to perceived pain, ACPP patients differed from the ICPP patients by one out of seven subscales (higher persistence of pain; p < 0.05). No correlation was found between the intensity of pain and the severity of classified adhesions. The two groups of pain patients significantly differed from controls by a higher prevalence of sexual abuse (p < 0.05). Depression was found neither in the pain groups nor in the controls. CONCLUSIONS: Because high somatization and high prevalence rates of abuse were not only found in patients suffering from ICPP but also in ACPP patients, it seems to be doubtful that the somatic pathology may fully explain the psychopathology in patients with ACPP.

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Chronic Pelvic Pain as a Somatoform Disorder

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Key Words
Chronic pelvic pain · Adhesions · Somatoform disorders · Posttraumatic stress disorder · Chronic stress · Trauma

Abstract
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Results: Diagnostic criteria for somatoform pain disorder were fulfilled in 73.3% of the ICPP patients, 60% of the ACPP patients and none of the controls. With respect to the somatization symptom checklist the two pain groups scored significantly higher than the controls (p < 0.05). Referring to perceived pain, ACPP patients differed from the ICPP patients by one out of seven subscales (higher persistence of pain; p < 0.05). No correlation was found between the intensity of pain and the severity of classified adhesions. The two groups of pain patients significantly differed from controls by a higher prevalence of sexual abuse (p < 0.05). Depression was found neither in the pain groups nor in the controls.

Conclusions: Because high somatization and high prevalence rates of abuse were not only found in patients suffering from ICPP but also in ACPP patients, it seems to be doubtful that the somatic pathology may fully explain the psychopathology in patients with ACPP.

Introduction

Somatoform disorders are characterized by different, mostly persistent or recurrent complaints which are medically unexplained [1]. The concept of somatoform disorders is subject to ongoing scientific discussions [2–4] and, due to a missing etiological framework, patients often show a high utilization of medical care without satisfactory relief of their complaints [5, 6]. Following the consider-

Maturation, psychiatric disturbances like depression and able characteristic of somatoform disorders. Besides so-
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patients. This finding leads to the hypothesis that an
reported pain and somatic pathology for both ICPP and
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which is the case in more than 50% of all women suffering
in these patients refer to prior gynecological surgery [25–
CPP in the absence of diagnosable somatic pathology
is described as idiopathic chronic pelvic pain (ICPP),
which is the case in more than 50% of all women suffering
from CPP [10, 20, 21]. Elevated scores of depression, anx-
nxiety, and somatization seem to be psychopathological
characteristics of these patients [14, 28, 29]. Recent stud-
ies indicate high prevalence rates of major sexual trauma
and/or the experience of physical abuse in ICPP patients
[30–32], therefore a stress-prone etiology of ICPP may be
assumed.

In summary, no correlation has been found between
reported pain and somatic pathology for both ICPP and
CPP patients. This finding leads to the hypothesis that an
increased self-awareness and hypersensitivity of bodily
sensations in women suffering from ICPP or CPP corre-
sponds to the pain symptomatology. This phenomenon,
known as ‘somatosensory amplification’ [33], is a remark-
able characteristic of somatoform disorders. Besides so-
mation, psychiatric disturbances like depression and
anxiety, at least in women with ICPP, have been as-
essed. These disturbances are highly interrelated in so-
maform disorders [34] and are possibly indicative of
an underlying somatoform disorder in these women. In
view of these considerations, we developed the following
hypotheses: First, we assume that CPP according to
the above-mentioned definition is one symptom of somato-
form disorders (somatization disorder or somatoform
pain disorder according to DSM-IV criteria). Second, we
assume a stress-related etiology of CPP not only for
ICPP but also for some forms of CPP with organic cor-
relates, like adhesions. In order to test these hypotheses
we investigated the history of critical life events and the
prevalence of psychiatric disturbances, including somati-
zation behavior, in women with ICPP and with CPP
caused by adhesions as compared to infertile controls
without pain.

Patients and Methods

Patients

A total of 26 patients with CPP (noncyclic pain with a duration of
at least 4 months) and 14 infertile controls without pain participated
in the study, which was part of an extended research project on the
psychoendocrinology of CPP [35]. None of the examined women
used oral contraceptives, hormonal medication or suffered from
severe medical illness. All women were consecutively referred to the
gynecological department of a general hospital (Herz-Jesu Kranken-
haus Trier, Germany) for diagnostic laparoscopy during the early fol-
ricular phase of the menstrual cycle. All 40 patients underwent a
Baseline workup consisting of medical case history, physical exami-
nation, laboratory screening, hysteroscopy, and laparoscopy. In 16 of
the 26 CPP patients no organic pathology was present, in the remain-
ing 10 patients adhesions were found during laparoscopy. The degree
of adhesions was rated according to the criteria of Donnez et al. [36]
by the study gynecologist who was blind to the psychiatric diagnoses.
In 5 of the 10 women slight adhesions (degree I) were diagnosed, in 3
patients adhesions were rated as degree II; degrees III and IV were
rated in 1 woman each. Details of the medical diagnostic results are
described elsewhere [37]. None of the participants showed any signs
of an acute inflammation. The participants of the study were subdi-
vided into three groups according to the results of the gynecological
examination. Patients with chronic pelvic pain without organic
pathology (ICPP; n = 16), patients with CPP and adhesions of the
lower abdomen (ACPP; n = 10), or infertile controls without pain
(n = 14). The mean age of the patients with ICPP was 27.9 years (SD
7.87), that of the patients with ACPP 28.8 years (SD 5.41), and that
of the infertile controls 30.1 years (SD 2.81). There were no signifi-
cant differences between the three groups in mean age or marital sta-
tus.

Methods

Besides the standardized assessment of diagnoses according to
DSM-III-R [38], all participants underwent semistandardized inter-
views and completed psychometric tests to estimate the self-reported
extent and quality of pain, the extent of unexplained physical complaints and depressive mood, and the number and quality of traumatic or critical life events.

In both groups of pain patients subjective ratings of the extent and quality of pain were assessed by a multidimensional pain inventory, the ‘Mehrdimensionale Schmerzskala’ (MSS) [39]. The questionnaire consists of 25 items which refer to one scale about the intensity of pain and six scales for the assessment of the quality of pain (sharp rhythm, accompanying discomfort, dull pain, unpredictable attack, pricking pain, persistent pain). Each item is rated on a 5-point Likert-like scale. To estimate the amount of somatic complaints during the last 7 days all participants completed a screening instrument for somatoform symptoms (SOMS) [40]. The questionnaire lists 53 somatic symptoms not caused by a physical condition. The participant is asked to rate whether each symptom is present or not. These symptoms are relevant to the diagnosis of somatization disorder according to DSM-III-R criteria. All positive items summed up give the total score of somatization symptoms. Depressive mood was estimated by a German version of the Self-Rating Depression Scale (SRD) of Zung [41]. The 20-item questionnaire measures primary symptoms of major depression and their occurrence and extent for the last 7 days are rated on a 4-point Likert-like scale.

Traumatic experiences of sexual or physical abuse during childhood or adulthood were assessed by the Sexual Abuse Interview according to Russel [42] and the Sexual and Physical Abuse Questionnaire according to Drossman et al. [43]. According to the criteria of Russel, sexual abuse is defined as any involuntary sexual contact that reaches from being touched in an intimate part of the body to multiple oral, vaginal or anal intercourse. Physical abuse is defined by events reaching from repeated battering to enforced captivity. Major life events which occurred during the past 6 months and which were not associated with sexual or physical abuse were monitored by a structured interview [44]. The following areas of life were examined: Family, occupation, finances, spouse relation, illness, death, social activities, and other events, such as lawsuit or removal.

All data were entered into the SPPS/PC+ statistical software package. Depending on the type of assessed data, comparisons between all three groups of patients were either performed by $\chi^2$ test, Kruskal-Wallis H test or unifactorial multivariate analysis of variance. For comparisons between the two groups of pain patients, Mann-Whitney U tests or Student’s t tests were performed. Correlational analyses were performed by computing Pearson coefficients of correlation. Level of significance was set at probabilities of $p < 0.05$ (two-tailed).

**Results**

In comparison to controls free from pain, both groups of pain patients reported a significantly higher number of abdominal surgeries ($\chi^2 = 13.6, p = 0.001$). From the total of women with ICPP, 68.8% underwent prior laparoscopy and/or appendectomy, 50% of the women with ACPP had one or both of these surgeries, and 7.1% of the controls underwent laparoscopy. Regarding the duration of perceived abdominal pain, the patients of the two pain groups did not differ. With reference to the actual perceived extent and quality of pain, patients with ACPP described a significantly higher persistence of the pain than the ICPP patients (table 1). No significant correlation was found between the intensity of perceived pain according to the MSS and the severity of the classified adhesions ($r = -0.026$, NS).

The results for the assessment of diagnosis according to DSM-III-R from the standardized interviews are summa-

### Table 1. Duration of pain and description of the actual pain according to the MSS in patients with ICPP, CPP and ACPP

<table>
<thead>
<tr>
<th>Duration of pain</th>
<th>Patients with ICPP (n = 16)</th>
<th>Patients with ACPP (n = 10)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>4–12 months</td>
<td>37.5(^1)</td>
<td>40.0(^1)</td>
<td></td>
</tr>
<tr>
<td>1–5 years</td>
<td>50.0</td>
<td>30.0</td>
<td></td>
</tr>
<tr>
<td>&gt;5 years</td>
<td>12.5</td>
<td>30.0</td>
<td></td>
</tr>
</tbody>
</table>

**Scales of the MSS**

<table>
<thead>
<tr>
<th>Scale</th>
<th>Mean (\pm SE) (n = 16)</th>
<th>Mean (\pm SE) (n = 10)</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensity</td>
<td>2.7 (\pm 0.27)</td>
<td>3.4 (\pm 0.29)</td>
<td>3.47</td>
<td>0.076</td>
</tr>
<tr>
<td>Sharp rhythm</td>
<td>3.7 (\pm 1.01)</td>
<td>4.6 (\pm 1.18)</td>
<td>0.31</td>
<td>NS</td>
</tr>
<tr>
<td>Acc. discomfort</td>
<td>10.5 (\pm 0.94)</td>
<td>11.0 (\pm 0.95)</td>
<td>0.11</td>
<td>NS</td>
</tr>
<tr>
<td>Dull pain</td>
<td>3.7 (\pm 0.77)</td>
<td>4.2 (\pm 0.95)</td>
<td>0.16</td>
<td>NS</td>
</tr>
<tr>
<td>Unpredictable attack</td>
<td>3.7 (\pm 0.67)</td>
<td>4.8 (\pm 1.21)</td>
<td>0.72</td>
<td>NS</td>
</tr>
<tr>
<td>Pricking pain</td>
<td>3.9 (\pm 0.89)</td>
<td>4.9 (\pm 0.68)</td>
<td>1.03</td>
<td>NS</td>
</tr>
<tr>
<td>Persistent pain</td>
<td>9.1 (\pm 0.58)</td>
<td>11.6 (\pm 1.12)</td>
<td>4.48</td>
<td>0.046</td>
</tr>
</tbody>
</table>

\(^1\) Percentages. \(^2\) Mean \(\pm SE\).
Table 2. Diagnosis according to DSM-III-R in patients with ICPP, CPP and ACPP, and in infertile controls without pain

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Patients with ICPP (n = 15)</th>
<th>Patients with ACPP (n = 10)</th>
<th>Controls (n = 10)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main diagnosis DSM-III-R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somatization disorder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somatoform pain disorder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undiff. somatoform disorder</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific phobia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Additional diagnosis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTSD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personality disorder</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Somatoform pain disorder was diagnosed in 73.3% of the ICPP patients and in 60% of the ACPP patients but in none of the controls. The diagnosis of undifferentiated somatoform disorder was assessed in 33.3% of the ICPP group, in 40% of the ACPP group, and in none of the controls. None of the pain patients showed somatization disorder while this diagnosis was found in 14.28% of the controls. Both of these women did not describe pain symptoms of the lower abdomen. One woman of the control group showed a specific phobia. In 40% of the patients with ICPP and in 10% of the patients with ACPP an additional diagnosis of posttraumatic stress disorder (PTSD) was assessed. A personality disorder was found in 13.3% of the patients with ICPP.

Table 3. Results from the screening for SOMS and SRD in patients with ICPP, CPP and ACPP, and in infertile controls without pain

<table>
<thead>
<tr>
<th></th>
<th>Patients with ICPP (n = 15)</th>
<th>Patients with ACPP (n = 10)</th>
<th>Controls (n = 14)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOMS</td>
<td>8.50 ± 4.59¹</td>
<td>10.77 ± 1.86²</td>
<td>2.92 ± 2.33</td>
<td>8.94</td>
</tr>
<tr>
<td>SRD⁴</td>
<td>47.14 ± 2.28</td>
<td>45.60 ± 2.03</td>
<td>42.21 ± 2.88</td>
<td>1.09</td>
</tr>
</tbody>
</table>

Values are mean ± SE.

1 Post hoc t test: patients with ICPP vs. controls; t = 3.23, p = 0.003.
2 Post hoc t test: patients with ACPP vs. controls; t = -3.90, p < 0.001.
3 Index values: <50 no depression, 50–60 mild depression, 60–70 moderate depression, >70 severe depression.
4 By analysis of variance.

Table 4. Prevalence rates of sexual abuse, physical abuse, number of critical life events in patients with ICPP, CPP and ACPP, and in infertile controls without pain

<table>
<thead>
<tr>
<th></th>
<th>Patients with ICPP (n = 15)</th>
<th>Patients with ACPP (n = 10)</th>
<th>Controls (n = 10)</th>
<th>Significance³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual abuse</td>
<td>66.7¹</td>
<td>50.0¹</td>
<td>21.4¹</td>
<td>⋆² = 6.04</td>
</tr>
<tr>
<td>Physical abuse</td>
<td>60.0</td>
<td>40.0</td>
<td>21.4</td>
<td>⋆² = 4.45</td>
</tr>
<tr>
<td>Critical events</td>
<td>6.20 ± 0.51²</td>
<td>6.40 ± 0.45²</td>
<td>4.79 ± 0.46²</td>
<td>F = 2.92</td>
</tr>
</tbody>
</table>

1 Percentages.
2 Mean ± SE.
3 By analysis of variance.
The three groups of patients significantly differed with respect to the number of bodily complaints during the previous 7 days ($F = 8.94, p < 0.001$). Post hoc comparisons between the groups showed significantly higher numbers of bodily complaints in the two groups of pain patients than in the controls (table 3). None of the three groups were clinically depressed as indicated by SRD scores (table 3).

With reference to the prevalence rates of sexual abuse, the three groups of women differed significantly (table 4). The pain patients reported more abuse experiences in comparison to the controls. Post hoc analysis showed significantly higher sexual abuse rates for women with ICPP in comparison to the control group ($\chi^2 = 5.99$, $p = 0.014$). The two groups of pain patients also reported higher abuse rates than the controls for physical abuse, but the difference did not reach significance (for a de-
tialed description of abuse experiences see table 5). There was a trend towards a higher number of negative critical life events in the two groups of pain patients in comparison to the control group (table 4).

**Discussion**

The association between sexual and physical abuse and ICPP has been extensively reported [13, 31, 45]. The data of our study confirm these findings for women with ICPP in comparison to our control group. Beyond this we found an increased prevalence of sexual and physical abuse in the group of women with CPP and verified abdominal adhesions (ACPP). The prevalence rates in both groups of pain patients are not only increased with reference to the controls but also higher compared to prevalence rates of sexual abuse in nonpsychiatric female populations [46]. With reference to the occurrence of critical life events during the 6 months prior to laparoscopy, both groups of pain patients reported a higher amount of life events than the controls, while there was no significant difference between the two groups of pain patients. Taken together, these results suggest that women with CPP, irrespective of the somatic pathology, are burdened by traumatic or major critical life events. This is also shown by the assessed psychiatric diagnoses, in which the experiences of traumatic events are reflected in a high number of diagnoses of PTSD. While none of the controls showed diagnosable PTSD, this diagnosis was obtained in 40% of the ICPP group and 10% of the women with ACPP. In each of these women the symptom-provoking event was the experience of sexual and/or physical abuse.

Most interestingly, none of the three groups of women reported depressive mood. This finding is contrary to the data described in most studies for the assessment of psychopathology in women suffering from CPP [14, 31, 47]. Possible explanations for this finding are twofold: First, in contrast to prior reported studies, we investigated three very homogenous groups of patients; no other than the described physical or psychiatric disturbances were found. A comorbidity with an additional diagnosis like substance-related disorders, which could explain depressive mood, was not found. Second, depression was assessed by a specific depression scale. Most studies used overall symptom checklists or personality inventories which may lead to nonspecific results referring to depression.

Both groups of patients reported nearly the same duration of pain experiences. The results of the pain question-

naire replicates the findings of Hodgkiss and Watson [14] in part, who found higher pain ratings in a mixed group of organ-related CPP patients than in ICPP patients. Furthermore, our results replicate the finding of Steege and Stout [23], who reported a missing correlation between the intensity of pain and the localization and severity of adhesions. The high scores on the somatization questionnaire for both groups of pain patients indicate that not only women with ICPP but especially those with ACPP suffer from a variety of unexplained bodily complaints in contrast to the controls. Even under exclusion of the two items which check lower abdominal complaints (i.e., abdominal pain, not related to menstruation: pain during intercourse), both patient groups still score above the cutoff of 6 symptoms for women in the somatic symptom index (SSI) for somatoform disorders as defined by Escobar et al. [48].

In summary, the patients with ICPP and ACPP differed from the control patients by a marked psychopathology in terms of DSM-III-R diagnoses, a higher number of somatization symptoms, an increased prevalence of sexual abuse, and a higher number of critical life events. The comparison between the two groups of pain patients reveals only marginal differences with respect to these parameters. Since a correlation between the reported pain intensity and the severity of adhesions was missing, it seems to be doubtful that the somatic pathology may fully explain the psychopathological findings. Our data do not allow any causal conclusions about a possible stress-prone etiology of CPP associated with abdominal adhesions, but some findings on CPP associated with endometriosis may give evidence for such hypothesis. In these patients a lack of correlation between the occurrence and extent of endometriosis and described pain has also been reported and a prevalence of endometriosis rates up to 22% in asymptomatic women [49–51]. Animal and human studies on endometriosis indicate that psychosocial stress may promote the occurrence of endometriosis [52–54]. Psychopathologically, these patients show elevated scores of somatization and depression [55, 56]. On the other hand, Reiter et al. [30] found neither increased prevalence rates of sexual abuse nor heightened scores of somatization in a group of CPP patients with mixed somatic abnormalities. However, patients with abdominal adhesions and patients with endometriosis were excluded. An inclusion of those two forms of CPP may have brought different results with respect to the prevalence rates of traumatic experiences and psychopathology.

Our conclusions are that CPP should not only be seen as a constellation of symptoms of the lower abdomen but
the diagnostic view should also be aimed at additional bodily complaints. As a consequence, in those women who report a variety of complaints in addition to lower abdominal pain, somatic examinations should not only focus on the predominant pain but also on the additional complaints. If these examinations do not result in the identification of an unambiguous somatic pathology, the diagnosis of a somatoform disorder should be performed, according to the individual constellation of symptoms. From our point of view, further studies aim at investigating whether noncyclic CPP represents an additional symptom of somatoform disorders, specifically somato- 

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References


