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Clinical profile and coexisting pain generators in patients with facet arthropathy attending a tertiary pain clinic: A retrospective record review

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Abstract

Background: Patients with facet arthropathy who attend tertiary pain clinics often have other potential pain generators. Overlapping symptoms complicate attribution, but clinic-based descriptions of these combined presentations remain scarce.

Materials and Methods: We retrospectively reviewed outpatient records from 5 September 2019 through 9 April 2026. An electronic search returned 915 entries. After repeat visits were removed, 313 unique patient records remained for screening. Facet arthropathy was recorded at the index visit in 245 patients: 90 had isolated facet arthropathy and 155 had at least one additional pain generator.

Results: The cohort's mean age was 53.82 ± 13.66 years; 113 patients (46.1%) were women. Mixed presentations accounted for 63.3% of the cohort and isolated facet arthropathy for 36.7%. The groups did not differ in age, sex, height, weight, or body mass index. Presenting-complaint distributions differed (chi-square = 14.64, df = 5, p = 0.012): back-only pain was more common in the isolated group, and multi-region complaints in the mixed group. The most common associated pain generators were spondyloarthropathy, PIVD/radiculopathy, and osteoarthritis or knee osteoarthritis.

Conclusion: At least one additional pain generator was recorded in nearly two-thirds of patients with facet arthropathy. Complaint patterns varied by phenotype, but symptoms alone did not identify the pain source.

Keywords: Facet arthropathy, Coexisting pain generators, Tertiary pain clinic, Retrospective record review, Low back pain.

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1. Introduction

Low back pain is a major cause of disability and places a substantial burden on patients and healthcare services.[1,2] Many patients referred to specialist pain clinics have several plausible sources of pain. Referred pain, age-related degeneration, and concurrent musculoskeletal disease can obscure the clinical pattern.

Facet joints can generate spinal pain, but prevalence estimates depend on the population and the diagnostic method.[3,4] Research and clinical guidelines generally use controlled diagnostic blocks as the reference standard. Routine records usually contain the treating physician's working diagnosis instead.[5-7]

Clinical history and physical examination cannot consistently distinguish facet pain from discogenic or sacroiliac joint pain. No single finding has adequate diagnostic accuracy.[6,7] Imaging is also limited: degenerative changes are common in asymptomatic

people. Facet changes may coexist with disc disease, sacroiliac joint pathology, myofascial pain, osteoarthritis, fibromyalgia, or spinal stenosis.[8-10]

Clinic records address a separate question: how facet arthropathy is documented in routine practice. They can show whether it is usually recorded alone or with other pain generators and whether presenting complaints differ between those patterns.[11-14] This study described the clinicodemographic profile and coexisting pain generators of patients with documented facet arthropathy and compared isolated with mixed presentations at a tertiary pain clinic.

2. Materials and Methods

2.1. Study design and setting

We conducted a retrospective observational study at a tertiary pain clinic using outpatient records generated during routine care. Diagnostic blocks were not used to confirm facet-mediated pain independently. Reporting followed the STROBE statement.[15]

2.2. Study period and record selection

We electronically searched clinic records dated 5 September 2019 to 9 April 2026 for facet-related entries. The search returned 915 records. Removal of repeat encounters at the patient level left 313 unique records for screening. For patients with more than one eligible visit, the earliest visit served as the index encounter.

The treating physician documented facet arthropathy in 245 index encounters; these records formed the analytical cohort. The other 68 records did not meet the case definition and were excluded from statistical analysis.

2.3. Eligibility criteria

Eligible records represented unique outpatients after de-duplication and contained a physician-recorded diagnosis of facet arthropathy at the index encounter. Age, sex, and sufficient clinical information for abstraction were required. The index encounter had to be identifiable, the diagnosis field available for review, and the chief complaint assignable to a predefined category. Records that lacked this minimum information were excluded.

2.4. Definitions and data collection

Diagnosis and chief-complaint entries were coded as structured variables. Isolated facet arthropathy denoted facet arthropathy without another major pain generator in the diagnosis field. Mixed facet arthropathy denoted facet arthropathy recorded with one or more additional pain generators. Chief complaints were classified as back only, knee, leg/radicular, multi-region, neck, or other.

One investigator reviewed the retained index encounters and abstracted age, sex, height, weight, body mass index, diagnosis wording, and complaint category. A record entered the mixed group when one or more additional clinically relevant pain generators were present and facet arthropathy remained part of the documented diagnosis. The study used neither separate diagnostic standardization nor formal inter-rater calibration.

2.5. Missing data and statistical analysis

The primary analysis included only records that met the facet arthropathy case definition. Missing values were not imputed. Continuous variables are reported as mean ± standard deviation and categorical variables as number and percentage. Independent-samples t tests compared continuous variables; Pearson's chi-square tests compared categorical variables. A chi-square test assessed the overall association between facet phenotype and complaint category. When cell counts were small, Fisher's exact test was used for exploratory row-wise 2 × 2 comparisons. These row-wise tests aided interpretation of the overall result and appear in Supplementary Table S1; they were not confirmatory analyses.

A separate exploratory analysis used the broader de-duplicated facet workbook to compare associated pathologies across unspecified, lumbar, cervical, thoracic, and mixed or multiple facet-region categories. The source analytical workbook applied false-discovery-rate adjustment.

2.6. Ethical considerations

The Institutional Ethics Committee approved the study before record review. The analysis used retrospective, de-identified data and involved no direct patient contact.

3. Results

3.1. Cohort selection

The electronic search yielded 915 entries. Removal of repeat encounters left 313 unique patient records for screening. Facet arthropathy was documented at the index visit in 245 patients; they formed the final cohort. Sixty-eight records did not meet the case definition. Figure 1 shows the record-selection process.

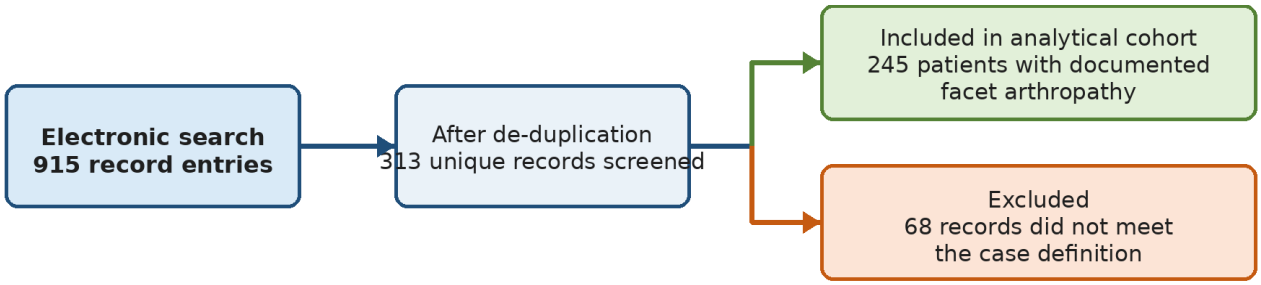


Figure 1: Selection of the analytical cohort

Table 1: Baseline characteristics according to facet phenotype

Variable	Isolated facet (n=90)	Mixed facet (n=155)	p value
Female sex, n (%)	41 (45.6)	72 (46.5)	0.892
Age (years), mean ± SD	54.18 ± 12.83	53.61 ± 14.16	0.747
Height (cm), mean ± SD	161.90 ± 8.89	161.67 ± 8.80	0.845
Weight (kg), mean ± SD	69.58 ± 12.28	69.41 ± 12.80	0.918
BMI (kg/m^2), mean ± SD	26.46 ± 3.69	26.57 ± 4.54	0.837

Continuous variables were compared using independent-samples t tests; sex distribution was compared using Pearson's chi-square test. SD: standard deviation; BMI: body mass index.

3.2. Clinicodemographic profile

The 245 patients had a mean age of 53.82 ± 13.66 years; 113 (46.1%) were women. Mean height was 161.75 ± 8.82 cm, mean weight 69.47 ± 12.59 kg, and mean body mass index 26.53 ± 4.24 kg/m^2. Ninety patients (36.7%) had isolated facet arthropathy and 155 (63.3%) had a mixed presentation.

No measured baseline characteristic differed significantly between the isolated and mixed groups (**Table 1**). Women accounted for 45.6% of the isolated group and 46.5% of the mixed group (p = 0.892). Figure 2 presents the phenotype distribution.

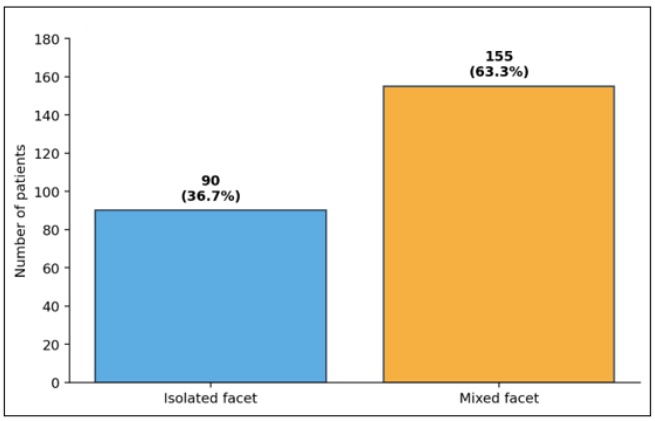


Figure 2: Distribution of isolated and mixed facet phenotypes in the final analytical cohort

3.4. Presenting complaints

Presenting-complaint distributions differed by phenotype (overall chi-square = 14.64, df = 5, p = 0.012). Back-only complaints occurred in 56.7% of the isolated group and 36.8% of the mixed group. The corresponding proportions for multi-region complaints were 18.9% and 38.1%. **Table 2** give the complete distribution.

Table 2: Primary complaint distribution according to facet phenotype

Primary complaint group	Isolated facet n (%)	Mixed facet n (%)
Back only	51 (56.7)	57 (36.8)
Knee	1 (1.1)	5 (3.2)
Leg/radicular	1 (1.1)	4 (2.6)
Multi-region	17 (18.9)	59 (38.1)
Neck	10 (11.1)	11 (7.1)
Other	10 (11.1)	19 (12.3)

Overall comparison: chi-square = 14.64, df = 5, p = 0.012. Percentages were calculated within each phenotype group.

3.5. Coexisting pain generators

Each patient in the mixed group had at least one additional documented pain generator. Across the full cohort, the most common associated diagnoses were spondyloarthropathy (49/245, 20.0%), prolapsed intervertebral disc (PIVD)/radiculopathy (33/245, 13.5%), osteoarthritis or knee osteoarthritis (32/245, 13.1%), myofascial pain syndrome (29/245, 11.8%), sacroiliac joint arthropathy (27/245, 11.0%), spinal stenosis (20/245, 8.2%), and fibromyalgia (11/245, 4.5%). Patients could have more than one associated diagnosis, so the categories were not mutually exclusive.

Table 3: Coexisting pain generators in the facet-positive cohort (n=245)

Coexisting pain generator	n	%
Spondyloarthropathy	49	20.0
PIVD/radiculopathy	33	13.5
Osteoarthritis/knee osteoarthritis	32	13.1
Myofascial pain syndrome	29	11.8
Sacroiliac joint arthropathy	27	11.0
Spinal stenosis	20	8.2
Fibromyalgia	11	4.5

Categories were not mutually exclusive. Percentages use the full cohort (n=245) as the denominator.

3.6. Exploratory analysis by facet region

The broader de-duplicated workbook showed variation in PIVD/radiculopathy/disc and myofascial pain across facet-region categories. PIVD/radiculopathy/disc occurred more often in lumbar and mixed or multiple-region presentations; myofascial pain was proportionally more common in cervical and thoracic presentations. The association with sacroiliac joint arthropathy was of borderline significance and did not persist after false-discovery-rate correction.

4. Discussion

One or more additional pain generators were recorded in 63.3% of patients with facet arthropathy; 36.7% had isolated facet arthropathy. Age, sex, height, weight, and body mass index were comparable between groups. Complaint patterns were not. Back-only pain occurred more often in the isolated group, whereas multi-region complaints occurred more often in the mixed group.

Mixed presentations are common in specialist pain practice because chronic spinal pain often cannot be assigned to one structure. Facet degeneration may coexist with disc disease, sacroiliac joint pathology, spinal stenosis, myofascial pain, or peripheral joint disease. Previous studies similarly found that clinically pure zygapophysial pain is uncommon and that pain generators often overlap.[3,5,7,11,12]

Complaint pattern was informative, not diagnostic. Back-only pain was more frequent when facet arthropathy was recorded alone; multi-region complaints were more frequent when another pain generator was present. This distinction may guide the initial assessment, but it cannot serve as a diagnostic rule. Systematic reviews found that no single symptom or examination finding reliably separates facet, disc, and sacroiliac joint pain.[6,7]

A recorded diagnosis is not equivalent to confirmed facet-mediated pain. Research protocols and clinical guidelines use controlled diagnostic blocks because history, examination, and imaging lack specificity.[5,14] This analysis did not include block confirmation. Its findings describe diagnoses recorded during routine care, not the prevalence of proven facet joint pain, and should not be compared directly with block-based prevalence estimates.[5,7,12,14]

The associated diagnoses broaden the differential diagnosis. Spondyloarthropathy, PIVD/radiculopathy, osteoarthritis, myofascial pain, sacroiliac joint arthropathy, and spinal stenosis all appeared in the cohort. Symptoms beyond a localized axial pattern warrant consideration of spinal and extra-spinal causes. Back-only pain is not dispositive either; treatment decisions require the full clinical evaluation rather than a complaint label.[5,14]

The region-based analysis was exploratory. PIVD/radiculopathy/disc was more frequent in lumbar and mixed or multiple-region presentations, whereas myofascial pain was proportionally more frequent in cervical and thoracic presentations. The thoracic subgroup was small. These findings generate hypotheses for prospective study but do not establish regional associations.

De-duplication at the patient level prevented frequent attendees from being counted more than once. Retained index encounters were reviewed manually, and complaint and diagnosis fields were coded within a consistent framework. The comparison matched the prespecified clinical distinction between isolated and mixed facet phenotypes.

5. Limitations of the Study

Facet arthropathy was a physician-recorded working diagnosis rather than a diagnosis confirmed by controlled blocks. The analysis depended on the accuracy and completeness of routine clinical documentation. All records came from one tertiary pain clinic, limiting generalizability, and exclusion of incomplete records may have introduced selection bias. One investigator performed data abstraction and phenotype coding without formal inter-rater calibration. The retrospective design supports description of associations, not causal inference.

A prospective study could use predefined diagnostic criteria, standardized abstraction, and adjustment for potential confounders. Where clinically indicated, diagnostic blocks would permit comparison of the recorded phenotype with a more specific reference standard. Follow-up would also test whether isolated and

mixed classifications are associated with treatment selection or clinical outcome.

6. Conclusion

Mixed facet arthropathy was more common than isolated facet arthropathy in this tertiary pain-clinic cohort. Back-only complaints occurred more often in the isolated group; multi-region complaints were more frequent in the mixed group. These patterns do not distinguish facet pain from other spinal or musculoskeletal pain generators. Treatment selection requires a complete clinical assessment.

Author Contributions

Ankit Arora: Conceptualization, data curation, manuscript drafting, coordination of revisions, critical revision, and final approval of the manuscript.

Gautam Das: Study supervision, clinical interpretation, manuscript review, critical revision, and final approval of the manuscript.

Vivek Chakole: Methodology, interpretation of findings, critical revision, and final approval of the manuscript.

Sushpa Das: Record review, data verification, manuscript review, critical revision, and final approval of the manuscript.

Abbreviations

BMI: Body mass index; df: Degrees of freedom; FDR: False discovery rate; PIVD: Prolapsed intervertebral disc; SD: Standard deviation; STROBE: Strengthening the Reporting of Observational Studies in Epidemiology.

Ethics Approval

The Institutional Ethics Committee approved the study before review of the records.

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The study received no external funding.

Conflict of Interest

The authors declare no conflict of interest.

Data Availability

The de-identified analytical dataset may be made available on reasonable request, subject to institutional approval and confidentiality requirements.

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