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Typical and Atypical Clinics in COVID-19 (SARS-Cov-2) RT-PCR Positive Patients: A Multicenter Retrospective Study

COVID-19 (SARS-Cov-2) RT-PCR Testi Pozitif Hastalarda Tipik ve Atipik Klinik Bulgular: Çok Merkezli Retrospektif Çalışma

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Abstract: In this study, we sought to determine the consistency of symptoms in patients admitted to three high-volume emergency departments with a diagnosis of COVID-19 with the standard definition published by the Turkish Ministry of Health, and to examine the relationship between symptom type and clinical outcomes. This multicentre, retrospective, observational study included adult patients aged 18 years and over who tested positive for SARS-CoV-2 by RT-PCR in the emergency departments of three hospitals between 11 March and 31 December 2020. Presentation symptoms were classified as typical or atypical in accordance with the national COVID-19 guidelines dated 7 December 2020. Demographic characteristics, vital signs, laboratory results, comorbidities and clinical outcomes were compared between the two groups. A total of 5,274 patients were enrolled; 2,763 (52.4%) were male, and the median age was 63 years. Of these, 4,262 (80.8%) had typical and 1,012 (19.2%) had atypical presentations. Dyspnea was the leading complaint (38.7%), followed by cough (29.9%) and fatigue (20.6%). Patients in the typical group were older (median 64 vs. 60 years, p<0.001), had lower oxygen saturation (90% vs. 91%, p<0.001), and demonstrated higher inflammatory markers including CRP, D-dimer, LDH, and ferritin. Intensive care unit admission was more frequent in the typical group (10.1% vs. 3.2%, p<0.001), as was in-hospital mortality (10.5% vs. 3.0%, p<0.001). Approximately one in five COVID-19 patients presented to the ED with atypical complaints. It should be noted that atypical or asymptomatic patients in terms of clinical course may be missed with symptom-based screening alone. Patients presenting with typical symptoms, particularly those with dyspnea and underlying comorbidities, had considerably worse outcomes and warrant close monitoring.

Keywords: COVID-19, pandemic, emergency department, symptoms, comorbidity, mortality.

Özet: Çalışmada, üç büyük hacimli acil servise COVID-19 tanısıyla başvuran hastaların başvuru yakınmalarının Türkiye Cumhuriyeti Sağlık Bakanlığı tarafından yayımlanan standart vaka tanımı ile uyumluluğunu belirlemeyi ve yakınma tipi ile klinik sonuçlar arasındaki ilişkiyi incelemeyi amaçladık. Çok merkezli, retrospektif, gözlemsel çalışmaya 11 Mart – 31 Aralık 2020 tarihleri arasında üç hastanenin acil servislerinde RT-PCR ile SARS-CoV-2 pozitifliği saptanan 18 yaş ve üzeri yetişkin hastalar dahil edildi. Başvuru yakınmaları 07.12.2020 tarihli ulusal COVID-19 rehberine göre tipik veya atipik olarak sınıflandırıldı. İki grup arasında demografik özellikler, vital bulgular, laboratuvar sonuçları, komorbiditeler ve klinik sonuçlar karşılaştırıldı. Toplam 5.274 hasta çalışmaya dahil edildi; 2.763'ü (%52,4) erkekti ve medyan yaş 63 idi. Hastaların 4.262'si (%80,8) tipik, 1.012'si (%19,2) ise atipik yakınma ile başvurdu. En sık başvuru yakınması nefes darlığı (%38,7) olup bunu öksürük (%29,9) ve halsizlik (%20,6) izledi. Tipik gruptaki hastalar daha yaşlıydı (medyan 64'e karşı 60 yıl, p<0,001), daha düşük oksijen satürasyonuna sahipti (%90'a karşı %91, p<0,001) ve CRP, D-dimer, LDH ve ferritin dahil enflamatuvar belirteçleri daha yüksekti (tümü p<0,001). Yoğun bakım yatış oranı (%10,1'e karşı %3,2, p<0,001) ve hastane yatışı sırasında mortalite (%10,5'e karşı %3,0, p<0,001) tipik grupta anlamlı olarak daha yüksekti. COVID-19 tanılı hastaların yaklaşık beşte biri acil servise atipik yakınmalarla başvurmaktadır. Klinik seyir açısından atipik veya asemptomatik hastaların yalnızca semptom temelli taramayla gözden kaçabileceğine dikkat edilmelidir. Tipik semptomlarla başvuran, özellikle nefes darlığı ve altta yatan komorbiditeleri olan hastalar belirgin şekilde daha kötü klinik sonuçlara sahiptir ve yakın takip gerektirir.

Anahtar Kelimeler: COVID-19, pandemi, acil servis, semptomlar, komorbidite, mortalite.

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1. Introduction

Coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has been responsible for substantial morbidity and mortality worldwide since its emergence in late 2019 (1-3). Following the identification of an unknown pneumonia cluster in Wuhan, China, the World Health Organization declared a pandemic on March 11, 2020(4–6). The same date on which the first confirmed case was reported in Türkiye. The disease is primarily spread through respiratory droplets and, as stated in the national COVID-19 guidance dated 7 December 2020, common symptoms include fever, cough, shortness of breath, muscle aches, a sore throat, and a new-onset loss of smell or taste; however, approximately one in three infected people remain asymptomatic throughout the course of the illness (7–10).

Advanced age, male sex, elevated acute-phase reactants, and pre-existing chronic conditions have all been linked to disease severity and poor prognosis in COVID-19 (11-13). Better characterization of initial symptom patterns and their association with downstream clinical trajectories could facilitate risk stratification in the emergency department (ED) setting, where timely triage decisions are critical.

In Türkiye, the Ministry of Health issued serial guidelines that distinguished “typical” from “atypical” COVID-19 presentations to aid clinical decision-making. However, the prognostic implications of this classification have not been thoroughly evaluated in a multicenter ED cohort. There is a gap in the current literature regarding the potential value of symptom-based classification in predicting clinical outcomes in the Emergency Department. Accordingly, we set out to examine the relationship between the type of presenting complaint (typical vs. atypical) and demographic characteristics, vital signs, laboratory parameters, comorbidities, and clinical outcomes in patients with RT-PCR-confirmed COVID-19 across three EDs in Eskisehir.

2. Materials and Methods

2.1. Study Design and Setting

This was a multicenter, retrospective, observational study conducted at the adult EDs of Eskisehir Osmangazi University Hospital, Eskisehir City Hospital, and Yunus Emre State Hospital, each of which receives more than 100,000 patient visits annually. The study protocol was approved by the Eskisehir Osmangazi University Non-Interventional Clinical Research Ethics Committee (02.03.2021, approval no. 01). The study complied with the Declaration of Helsinki and research and publication ethics.

2.2. Participants

We included all adults (≥18 years of age) who presented to one of the three participating EDs between March 11 and December 31, 2020, and were confirmed positive for SARS-CoV-2 by reverse-transcription polymerase chain reaction (RT-PCR) on nasopharyngeal and/or oropharyngeal swab specimens. The study period began on the date of both the WHO pandemic declaration and the first reported case in Türkiye. Patients under 18 years of age, those with negative PCR results, and vulnerable groups (pregnant women, prisoners, and military staff) were excluded. Nasopharyngeal and/or oropharyngeal swab specimens were collected by trained healthcare personnel in accordance with the Turkish Ministry of Health COVID-19 guidelines. Viral RNA was extracted using the Bio-Speedy® Viral Nucleic Acid Buffer (Bioexen LTD), and RT-PCR was performed with the Bio-Speedy® SARS-CoV-2 Double Gene RT-qualitative PCR (q-PCR) Detection Kit, Version 1 (Bioexen LTD), using primers and probes targeting SARS-CoV-2 (N) and SARS-CoV-2 (ORF1ab) gene fragments on the Rotor-Gene Q 5plex HRM real-time platform. A Cq value ≤38 was accepted as positive.

2.3. Variables and Data Sources

Clinical data were extracted from the hospital information management systems of the three centers. In accordance with the Turkish Ministry of Health COVID-19 guideline dated 7 December 2020, presenting complaints were classified as typical (fever, cough, dyspnea, sore throat, headache, myalgia, fatigue, anosmia, or ageusia) or atypical, with the latter defined as any clinical presentation other than these typical findings (7). Patients who currently exhibit any typical symptoms have been included in the typical symptom group. Additional variables of interest included demographic characteristics (age, sex), vital signs at triage (systolic and diastolic blood pressure, heart rate, body temperature, respiratory rate, and peripheral oxygen saturation [SpO_2]), comorbidities (hypertension, diabetes mellitus, chronic lung

disease, coronary artery disease, heart failure, atrial fibrillation, malignancy, cerebrovascular disease, chronic kidney disease, thyroid disorders, rheumatologic conditions, chronic liver disease, and solid organ transplant recipients), laboratory biomarkers (white blood cell count, lymphocyte count, C-reactive protein [CRP], procalcitonin, D-dimer, blood urea nitrogen, creatinine, sodium, potassium, alanine aminotransferase [ALT], aspartate aminotransferase [AST], total and direct bilirubin, lactate dehydrogenase [LDH], creatine kinase [CK], ferritin, and troponin), and ED disposition (discharge, ward admission, intensive care unit [ICU] admission, or death). The atypical category comprised patients presenting with non-classic complaints, including gastrointestinal symptoms (e.g., diarrhea and nausea/vomiting), neurological symptoms (e.g., altered mental status), and other non-specific findings, as well as patients who were asymptomatic at the time of ED presentation. Accordingly, the 735 patients who were asymptomatic on arrival, having none of the typical symptoms, were analyzed within the atypical group. For patients with more than one eligible ED visit during the study period, only the first (index) visit was included, so that each patient was represented once. Clinical outcomes were defined a priori: ED disposition reflected the first disposition decision from the ED (discharge home, admission to a general ward, or admission to an ICU); in-hospital mortality (death in the ED and in-hospital death afterward or ICU admission) was recorded as separate outcomes.

2.4. Statistical Analysis

Continuous variables were reported as mean ± standard deviation and median [interquartile range]. Categorical variables were expressed as counts and percentages. The Shapiro–Wilk test was used to assess normality. Between-group comparisons were performed with the independent-samples t-test for normally distributed data and the Mann–Whitney U test otherwise. Chi-square tests (Pearson, Yates correction, or Fisher exact) were applied for categorical variables. All analyses were carried out in IBM SPSS Statistics version 21.0 (IBM Corp., Armonk, NY, USA), and a two-tailed p-value of less than 0.05 was considered statistically significant. Missing data were handled using an available-case approach; no imputation was performed, and each variable was analyzed using all patients with available data for that variable. To identify factors independently associated with adverse outcomes, multivariable binary logistic regression models were constructed for two dependent variables: intensive care unit admission and in-hospital mortality. Candidate predictors were selected based on clinical relevance and univariable significance, and comprised age, sex, complaint type (typical vs. atypical), comorbidities (hypertension, diabetes mellitus, chronic lung disease, and coronary artery disease), admission SpO2, and selected laboratory biomarkers (CRP, D-dimer, and lymphocyte count). Results were expressed as adjusted odds ratios (aOR) with 95% confidence intervals (CI); model calibration was assessed with the Hosmer-Lemeshow goodness-of-fit test and discrimination with the area under the receiver-operating-characteristic curve.

3. Results

Over the study period, 5,274 patients met the inclusion criteria. Of these, 2,763 (52.4%) were male, and 2,511 (47.6%) were female; the overall median age was 63 years. A total of 4,262 patients (80.8%) presented with typical complaints, while 1,012 (19.2%) had atypical presentations. The most frequently reported symptom was dyspnea (n=2,041, 38.7%), followed by cough (n=1,579, 29.9%), fatigue (n=1,091, 20.6%), and fever (n=974, 18.4%). Seven hundred thirty-five patients (13.9%) were asymptomatic at the time of ED visit. No significant association was found between complaint type and sex (p=0.069).

The distribution of presenting complaints within the atypical group is detailed in Table 1. Of the 1,012 patients classified as atypical, 735 (72.6%) were asymptomatic on arrival, whereas 277 (27.4%) presented with non-classic complaints, most commonly altered mental status (n=74, 7.3%) and nausea/vomiting (n=44, 4.3%); the remaining patients presented with other non-specific complaints.

Table 1. Distribution of presenting complaints within the atypical group (n=1,012).

Presenting complaint	**n (%)**
Asymptomatic on arrival	735 (72.6)
Symptomatic with atypical complaints	277 (27.4)
Altered mental status	74 (7.3)
Nausea / vomiting	44 (4.3)
Other non-specific complaints	159 (15.7)

Percentages are of the atypical group (n=1,012). Patients whose gastrointestinal or other atypical symptoms co-occurred with any typical symptom were classified in the typical group.

Age and vital sign comparisons between the two groups are displayed in Table 2. Patients with typical complaints were significantly older (median 64 vs. 60 years, p<0.001) and presented with a higher respiratory rate (p=0.002) and lower SpO_2 (p<0.001). No statistically significant differences were observed for blood pressure, heart rate, or body temperature.

Table 2. Comparison of age and vital signs between typical and atypical complaint groups. Data are presented as median [Q1–Q3].

Parameter	**Typical (n=4,262)**	**Atypical (n=1,012)**	**p***
Age (years)	64.00 [51–74]	60.00 [45–72]	<0.001
SBP (mmHg)	125.00 [110–147]	125.00 [108–146]	0.533
DBP (mmHg)	75.00 [65–87]	75.00 [65–86]	0.499
Heart rate (/min)	82.00 [72–94]	84.00 [72–94]	0.567
Respiratory rate (/min)	24.00 [20–26]	23.00 [20–25]	0.002
Temperature (°C)	37.00 [36.5–37.9]	36.90 [36.5–37.6]	0.076
SpO_2 (%)	90.00 [86–95]	91.00 [87–95]	<0.001

**Mann–Whitney U test. SBP: Systolic Blood Pressure, DBP: Diastolic Blood Pressure, SpO_2: Peripheral Capillary Oxygen Saturation*

Chronic comorbid conditions were present in 2,417 patients (45.8%) overall. The prevalence of comorbidity was significantly higher in the typical group (49.5% vs. 30.5%, p<0.001). The distribution of the most common comorbidities is shown in Table 3.

Table 3. Distribution of common comorbidities by complaint type.

Comorbidity	**Total n (%)**	**Typical n (%)**	**Atypical n (%)**	**p***
Hypertension	1,262 (23.9)	1,098 (25.8)	164 (16.2)	<0.001
Diabetes mellitus	1,004 (19.0)	880 (20.6)	124 (12.3)	<0.001
Chronic lung disease	500 (9.5)	458 (10.7)	42 (4.2)	<0.001
Coronary artery disease	361 (6.8)	312 (7.3)	49 (4.8)	0.004

Malignancy	168 (3.2)	146 (3.4)	22 (2.2)	0.046
Heart failure	127 (2.4)	111 (2.6)	16 (1.6)	0.067
Atrial fibrillation	115 (2.2)	101 (2.4)	14 (1.4)	0.055

**Chi-square test.*

Hypertension, diabetes, chronic lung disease, coronary artery disease, and malignancy were each significantly more prevalent among patients with typical complaints.

Laboratory findings stratified by complaint type are presented in Table 4. Patients in the typical group had significantly higher white blood cell counts, CRP, procalcitonin, D-dimer, BUN, creatinine, AST, ALT, LDH, CK, and ferritin levels, along with significantly lower lymphocyte counts and serum sodium concentrations (all p<0.001). The proportion of patients with troponin above the threshold value was also higher in the typical group (27.6% vs. 22.9%, p=0.005).

Table 4. Laboratory findings by complaint type. Data are presented as median [Q1–Q3].

Parameter	**Typical Median [Q1–Q3]**	**Atypical Median [Q1–Q3]**	**p***
WBC (10^3/μL)	6.21 [4.86–8.43]	5.92 [4.63–7.79]	<0.001
Lymphocyte (10^3/μL)	1.29 [0.87–1.84]	1.52 [1.08–2.08]	<0.001
CRP (mg/L)	30.6 [7.78–88.36]	11.73 [2.90–43.50]	<0.001
Procalcitonin (ng/mL)	0.17 [0.08–0.59]	0.10 [0.03–0.47]	0.001
D-dimer (μg/L)	333 [176–790]	258 [132–550]	<0.001
BUN (mg/dL)	16 [12–22.65]	15 [11–20]	<0.001
Creatinine (mg/dL)	0.91 [0.75–1.14]	0.87 [0.74–1.06]	<0.001
Sodium (mEq/L)	137 [134–139]	138 [135.75–140]	<0.001
ALT (U/L)	23 [15–36]	20 [14–32]	<0.001
AST (U/L)	28 [20–40]	24 [18–34]	<0.001
LDH (U/L)	271 [212–363]	239 [190–310]	<0.001
Ferritin (ng/mL)	278 [123.65–550.50]	170.45 [81.05–379.45]	<0.001
CK (U/L)	83 [49–171]	68 [44–117]	<0.001

**Mann–Whitney U test. Potassium (p=0.127) and total bilirubin (p=0.102) did not differ significantly between groups.*

ED disposition and in-hospital mortality data are summarized in Table 5. ICU admission was markedly more common among patients with typical presentations (10.1% vs. 3.2%, p<0.001), and in-hospital mortality was likewise higher in this group (10.5% vs. 3.0%, p<0.001).

Table 5. Emergency department disposition and mortality by complaint type.

Outcome	**Total n (%)**	**Typical n (%)**	**Atypical n (%)**	**p‡**
Discharge	139 (2.6)	114 (2.7)	25 (2.5)	0.407
Ward admission	4,658 (88.3)	3,707 (87.0)	951 (94.0)	<0.001
ICU admission	464 (8.8)	432 (10.1)	32 (3.2)	<0.001
ED mortality	13 (0.2)	9 (0.2)	4 (0.4)	0.228
In-hospital mortality*	475 (9.0)	445 (10.5)	30 (3.0)	<0.001

*‡ Chi-square test. *In hospital mortality (n=5,261).*

In multivariable logistic regression analysis (Table 6), older age, lower admission SpO2, and higher CRP and D-dimer levels were independently associated with both ICU admission and mortality. After adjustment, an atypical presentation was independently associated with lower mortality (aOR 0.51, 95% CI 0.34-0.77), while its association with ICU admission did not reach statistical significance (aOR 0.64, 95% CI 0.40-1.03). Chronic lung disease remained independently associated with mortality (aOR 1.40, 95% CI 1.01-1.94). Both models demonstrated good discrimination, with an area under the receiver-operating-characteristic curve of 0.94 for ICU admission and 0.88 for mortality.

Table 6. Multivariable binary logistic regression for intensive care unit admission and mortality.

Variable	ICU admission aOR (95% CI)	p	Mortality aOR (95% CI)	p
Age (per 1 year)	1.02 (1.01-1.04)	<0.001	1.06 (1.05-1.07)	<0.001
Male sex	0.95 (0.70-1.30)	0.765	1.07 (0.84-1.37)	0.568
Atypical complaint (vs. typical)	0.64 (0.40-1.03)	0.069	0.51 (0.34-0.77)	0.001
Hypertension	1.41 (0.98-2.02)	0.062	1.02 (0.77-1.35)	0.885
Diabetes mellitus	1.02 (0.70-1.48)	0.930	1.16 (0.87-1.56)	0.303
Chronic lung disease	1.13 (0.74-1.74)	0.570	1.40 (1.01-1.94)	0.043
Coronary artery disease	1.52 (0.91-2.53)	0.107	1.41 (0.97-2.04)	0.071
Admission SpO2 (per 1%)	0.74 (0.72-0.76)	<0.001	0.93 (0.92-0.94)	<0.001
CRP (per 10 mg/L)	1.10 (1.08-1.12)	<0.001	1.10 (1.08-1.11)	<0.001
D-dimer (per 100 µg/L)	1.01 (1.00-1.01)	<0.001	1.00 (1.00-1.01)	0.004
Lymphocyte (per 10^3/µL)	1.05 (1.02-1.08)	0.001	1.01 (0.99-1.03)	0.363

n=4,572 patients with complete data for all covariates. aOR: adjusted odds ratio; CI: confidence interval; ICU: intensive care unit; CRP: C-reactive protein. Model performance: ICU admission, area under the ROC curve 0.94, Hosmer-Lemeshow p=0.07 area under the ROC curve 0.88, Hosmer-Lemeshow p=0.13.

3. Discussion

In this multicenter retrospective analysis of 5,274 RT-PCR-confirmed COVID-19 patients presenting to three EDs, we found that four out of five patients exhibited typical complaints, whereas the remaining one-fifth had atypical presentations. Patients with typical symptoms were older, more frequently had chronic comorbidities, and demonstrated significantly worse laboratory and clinical outcomes, including higher ICU admission and mortality rates.

Our cohort was 52.4% male, broadly consistent with national surveillance data reporting a 50.6% male predominance (14). Mukherjee and Pahan reported that symptom profiles were largely similar between sexes, although male patients tended to have a worse prognosis, potentially owing to differences in angiotensin-converting enzyme 2 (ACE2) receptor expression and lifestyle factors such as smoking (15). We similarly found no significant difference in complaint type between sexes (p=0.069).

Dyspnea (38.7%) ranked as the most common presenting symptom in our cohort, followed by cough (29.9%), fatigue (20.6%), and fever (18.4%). This ordering differs somewhat from that reported in large general-population studies: for instance, Stokes et al. identified cough (50.3%), fever (43.1%), and myalgia (36.1%) as the leading symptoms in a US cohort (16), while Chen et al. found fever (83%) and cough (82%) predominating among hospitalized patients in Wuhan (17). However, our findings align more closely with those of Ramos-Rincon et al., who reported dyspnea (61.5%) as the most common complaint in patients aged 80 and over (18). The relatively advanced median age of our study population (63 years) likely accounts for this pattern.

With respect to vital signs, patients in the typical group had significantly lower SpO_2 levels and higher respiratory rates than those in the atypical group, while blood pressure, heart rate, and body temperature did not differ. These observations are in keeping with the work of Xie et al., who demonstrated that hypoxemia at presentation was associated with more rapid clinical deterioration and higher mortality (19). Rechtman et al. similarly identified respiratory rate and SpO_2 as key predictors of in-hospital death after age (20).

The most prevalent comorbidities in our cohort were hypertension (23.9%) and diabetes (19.0%), consistent with findings from large international series (21,22). Notably, hypertension, diabetes, chronic lung disease, coronary artery disease, and malignancy were each significantly more common among patients with typical presentations, suggesting that the burden of chronic disease may contribute to a more recognizable and severe initial symptom profile.

From a laboratory standpoint, patients in the typical group exhibited a pattern of heightened systemic inflammation (elevated CRP, procalcitonin, and ferritin), coagulopathy (elevated D-dimer), and end-organ stress (elevated LDH, transaminases, and creatinine), alongside lymphopenia and hyponatremia. These findings mirror those of a systematic review and meta-analysis by Tian et al. encompassing 4,659 patients (23) and the biomarker analysis by Henry et al. (24), both of which linked these laboratory derangements to critical illness and death. The lower sodium levels observed in the typical group are also noteworthy; hyponatremia has

been identified as an adverse prognostic marker in COVID-19, with syndrome of inappropriate antidiuretic hormone secretion being the principal proposed mechanism.

Our outcome data revealed that the vast majority of patients (88.3%) were admitted to hospital wards and 8.8% to ICUs, figures comparable to those reported by Guan et al. (22). Both ICU admission (10.1% vs. 3.2%) and in-hospital mortality (10.5% vs. 3.0%) were significantly higher among patients with typical presentations. Given the likelihood that our discharge rates were low due to the hospitalization and isolation policies in place during the early stages of the pandemic. Due to the limited relevance of this situation to the findings of our study, we do not believe this had any impact on the conclusions of our study or the generalizability of the results.

Our findings are consistent with data from other Turkish emergency department cohorts. In a single-center ED study of 419 patients with COVID-19, Turkay Kunt et al. reported an in-hospital mortality of 17% and identified low admission SpO2 together with elevated D-dimer and CRP and lymphopenia as being associated with mortality (25), a biomarker signature that closely parallels the pattern observed in our typical-complaint group and in our multivariable models. Similarly, Yuruk Atasoy and Beydogan, in 367 RT-PCR-confirmed ED patients, found advanced age, comorbidity, and elevated lactate dehydrogenase and creatine kinase to be associated with poor outcomes (26). These single-center Turkish studies report broadly similar laboratory and outcome patterns to those observed in our cohort, although differences in sample size, design, and patient selection should be taken into account when comparing results. The heterogeneous nature of the atypical group, the distribution of asymptomatic patients, the inclusion of only test-positive patients, and the fact that the study was conducted during the early stages of the pandemic, before vaccination, may have contributed to these results.

4.1. Limitations

Several limitations should be acknowledged. The retrospective design meant that we relied on data recorded in hospital information systems, and symptom classification was based on ED records rather than standardized prospective assessment. The study period encompassed the first year of the pandemic (pre-vaccination era), so our results may not be generalizable to vaccinated populations or to periods dominated by different viral variants. The restriction to three centers in a single Turkish province may limit external validity. Our study was conducted with patients who tested positive by RT-PCR. Patients for whom clinical and/or chest CT findings were consistent with a diagnosis of COVID-19, despite testing negative, may have been excluded from the study. This may have implications for the selection of patients. The results of the study are thus limited in terms of their generalizability to the entire clinical population affected by the virus. Finally, the atypical group was defined as a residual category; a more granular classification of atypical symptom clusters might yield additional insights.

5. Conclusion

Approximately one in five patients diagnosed with COVID-19 in the ED presented with atypical complaints. While these patients generally had a more favorable clinical trajectory, their capacity for viral transmission underscores the continued importance of infection-control measures and screening strategies that extend beyond the classic symptom profile. Conversely, patients presenting with typical complaints, particularly those with dyspnea and coexisting chronic conditions, demonstrated a markedly worse clinical course and merit close surveillance, early risk stratification, and proactive treatment planning.

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