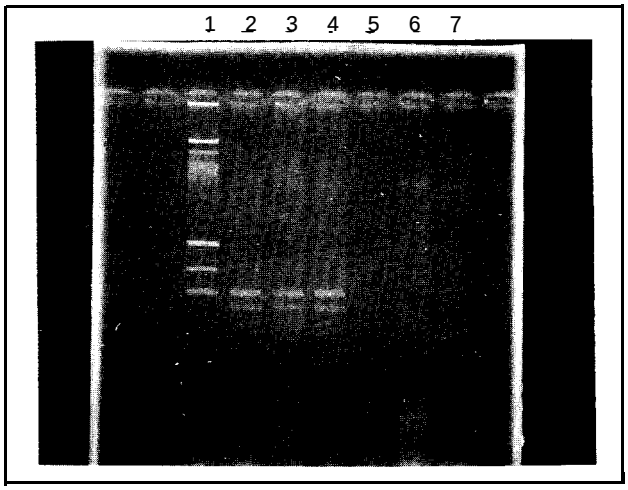

FIGURE. Plasmid profile of strains isolated from patients A and B. Line 1, marker strain; lines 2 to 4, patient A; lines 5 to 7, patient B.

patients in our ICU. The isolates of *S marcescens* obtained from both patients had a similar biochemical profile (API20E) and antibiotic susceptibility (MICs: ≤ 0.5 mg/L for gentamicin and ciprofloxacin, ≤ 1 mg/L for imipenem, ≤ 2 mg/L for ceftazidime and amikacin, ≤ 8 mg/L for piperacillin and ticarcillin/clavulanic acid, and >64 mg/L for amoxicillin and amoxicillin/clavulanic acid). Based on the chronological patterns of colonization, with isolates with similar antibiograms and biochemical profiles, cross-acquisition with *S marcescens* from patient B to patient A during the first hours of admission was suggested strongly. To determine the similarity of isolates from the two patients, 17 isolates of *S marcescens* obtained from patient A and 53 isolates obtained from patient B were analyzed. The strains from patient A were isolated from the oropharynx (N = 3), rectal swabs (N = 2), the nose (N = 3), tracheal aspirates (N = 3), the groin (N = 3), and the stomach (N = 3). From patient B, isolates were cultured from the oropharynx (N = 27), the stomach (N = 24), and tracheal aspirates (N = 1), in a time period extending 5 days before the admission of patient A until the day patient A succumbed. Serotyping was performed by means of a passive hemagglutination test as described by Guinée et al.[6] Interestingly, all isolates from patient A had an identical serotype (010AC:Hnm), and all isolates from patient B also had an identical, but different, serotype (04,6B:H12). In addition, plasmid analysis was performed as described previously.[7] In line with the results of serotyping, two different plasmid patterns were observed for the strains from patient A and patient B (Figure), thus refuting the initial suggestion of cross-acquisition from patient B to patient A.

DISCUSSION

In summary, the evaluation of sequential colonization with *S marcescens*, having similar antibiograms and biochemical profiles, in two patients treated within the same ICU and in the same period of time, strongly suggested cross-acquisition leading to fatal infection for one patient. However, serotyping and plasmid analysis of multiple isolates obtained from several body sites and on several days demonstrated two patient-specific strains of *S marcescens*. As a matter of fact, cross-acquisition probably had not occurred.

Although in some studies, similarity of bacterial isolates from the same species has been established by comparison of biochemical profiles and antibiograms,[8] the potential insufficiency of that approach is demonstrated here. These data underscore the importance of genotypic and phenotypic characterization of strains for hospital epidemiological studies. However, for a practical approach, we recommend surveillance and phenotypic characterization on an ongoing basis in high-risk areas, with the addition of genotypic analysis only when outbreaks are suspected.

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