Introduction: We studied the various stone, renal, and therapy factors that could affect steinstrasse formation after shock wave lithotripsy (SWL) to define their predictive value. Patients and Methods: Between May 1999 and September 2002, 563 patients were treated with a Stonelight V3 lithotriptor. A steinstrasse was recorded in 46 patients. All patient data, stone and renal characteristics, and data of SWL were reviewed. Statistical analyses of patients, stones, and therapy characteristics in correlation with the incidence of steinstrasse formation were performed to assign factors that had a significant impact on the formation of this complication. Results: The over-all incidence of a steinstrasse was 8.17%. The steinstrasse was in the pelvic ureter in 84.3% of the cases, in the iliac ureter in 7.84% of them, and in pelvic and iliac ureter in 7.84% of the patients. The incidence of a steinstrasse significantly correlated with stone size and site. The incidence rates of a steinstrasse in renal stones <1 cm, 1-2 cm, and >2 cm were 4.46, 15.87, and 24.3% respectively. The incidence rates of this complication in ureteral stones <1 cm and 1-2 cm were 3.37 and 9.52%, respectively. The incidence rates of a steinstrasse in stones located in upper calices, middle calices, lower calices, and renal pelvis were 6.12, 10.52, 6.36, and 19.32%, respectively. Conclusions: Stone size and site are the significant factors predicting the formation of a steinstrasse. If a patient has a high probability of steinstrasse formation, close follow-up with early intervention or prophylactic pre-SWL ureteral stenting is indicated.