Purpose/Objective(s): To analyze the results of brachytherapy (BT) for squamous cell carcinoma (SCC) of the penis (Jackson stage I classification), in a large series with a long follow-up. Patients (pts) with pathological inguinal lymph node involvement were excluded.

Materials/Methods: Between 1970 and 2006, 157 pts of median age 63 years (26-94) were treated by exclusive BT for a carcinoma of the penis confined to the glans or the prepuce, 12 of them presented with in situ carcinoma (CIS). Inguinal nodes dissection was performed in 18% of pts (all selected to be N- in the study). After a wide circumcision, BT was performed using the hypodermic needles technique in the GAG applicator. The median radioactive Iridium line number was 6 (2-18) and the median number of planes was 2 (1-5). The median radioactive length per needle was 4 cm (2-6) and the median radioactive length per patient was 24 cm (4-108). The median delivered dose according to the rules of the Paris system was 65 Gy (37-76).

Results: 1) For the pts with invasive SCC, the median follow-up was 67 months (0.5-353). The 10 year risk of local relapse was 21% (CI 95%; 12-30) and more than 95% of local recurrences were locally controlled by a salvage treatment consisted in: partial (57%) or total (29%) amputation, excision (5%) or a second BT (9%). The 10 year risk of inguinal lymph node relapse and metastases were 11% (CI 95%; 5-17) and 7% (CI 95%; 3-11). The 10 year specific survival was 91% (CI 95%; 86-96). Urethral stricture was observed in 24% of pts and pain (requiring medicine) in 23% of pts, 8% of the pts requiring surgery for these complications. Complications were correlated with: the number of needles (p=0.02), the number of planes (p= 0.06), the total radioactive length (p=0.06) and the treated volume (p=0.02) (Mann-Whitney test). 2) For the pts with CIS, the median follow-up was 88 months (31-181). Three pts had a local relapse (all CIS), 6, 13 and 57 months after BT. Salvage treatment consisted in: local excision (1 pt), partial amputation (1 pt) and second BT (1 pt); all pts being controlled without disease at the date of the last news. Complications were correlated with: the number of needles (p=0.04), the number of planes (p= 0.03), the total radioactive length (p=0.05) and the treated volume (p=0.06).

Conclusions: Brachytherapy is an effective conservative treatment for invasive and in situ carcinoma confined to the glans or the prepuce. In case of local relapse, salvage local treatments are efficient. Cancer deaths are mainly due to lymph nodes or metastasis recurrences as first events or combined with local recurrence. Late complications are related to BT parameters.

Author Disclosure: K. Slimane, None; R. de Crevoisier, None; T. Messai, None; M. Albano, None; A. Bridier, None; P. Wibault, None; A. Gerbaulet, None; C. Haie-Meder, None.