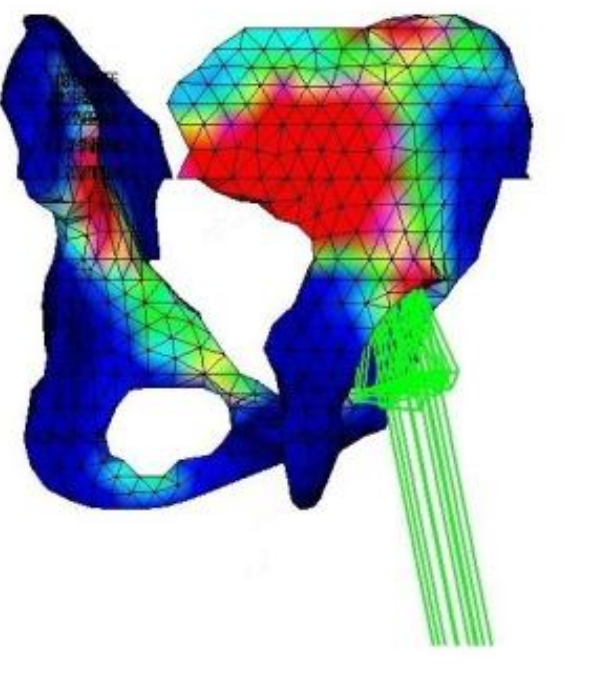




USE OF POLY (L-LACTIC ACID) PLLA AS BONE GRAFTS SUBSTITUTE AFTER BENIGN TUMOR RESECTION. A PRELIMINARY CLINICAL TRIAL



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METHODOLOGY

PLLA was synthesized by mass polymerization of the cyclical monomers as L-lactic acid, using Sn (Oct)₂ as catalyst. Polymerization were carried out in glass ampoules sealed and under vacuum, immersed in an oil bath at 130°C, for 24 hours. The polymer was obtained with high molar mass (around 10⁵ g/mol). The PLLA grains were sterilized by ethylene oxide gas and stored in plastic bags.

This study follows the case of two patients after the removal of benign tumors from different areas. After the removal the cavities were filled with grains of poly (L-lactic acid) PLLA. In this study were included patients with benign tumors type B1 and B2 which the routine treatment should be resection and bone cement or bone graft application. The diagnostic routine included X-rays, computer tomography, magnetic resonance and when necessary biopsies to diagnosis confirmation.

RESULTS CASE I

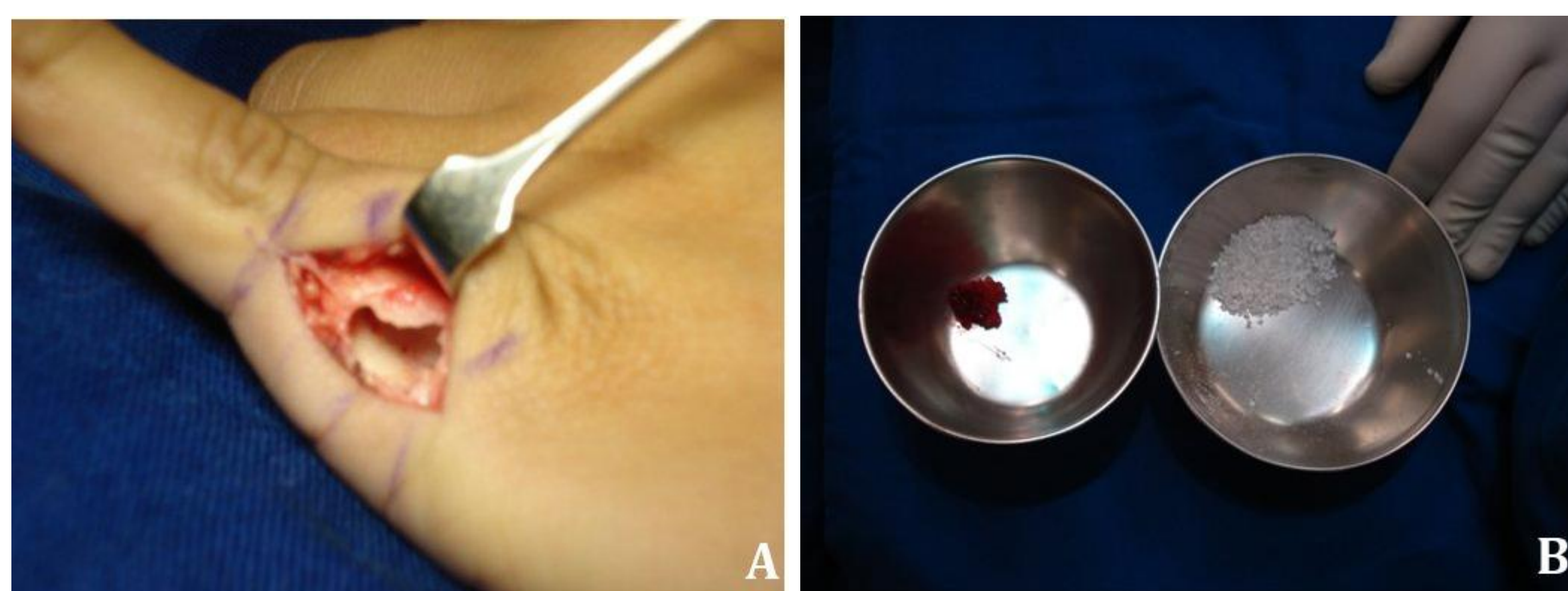
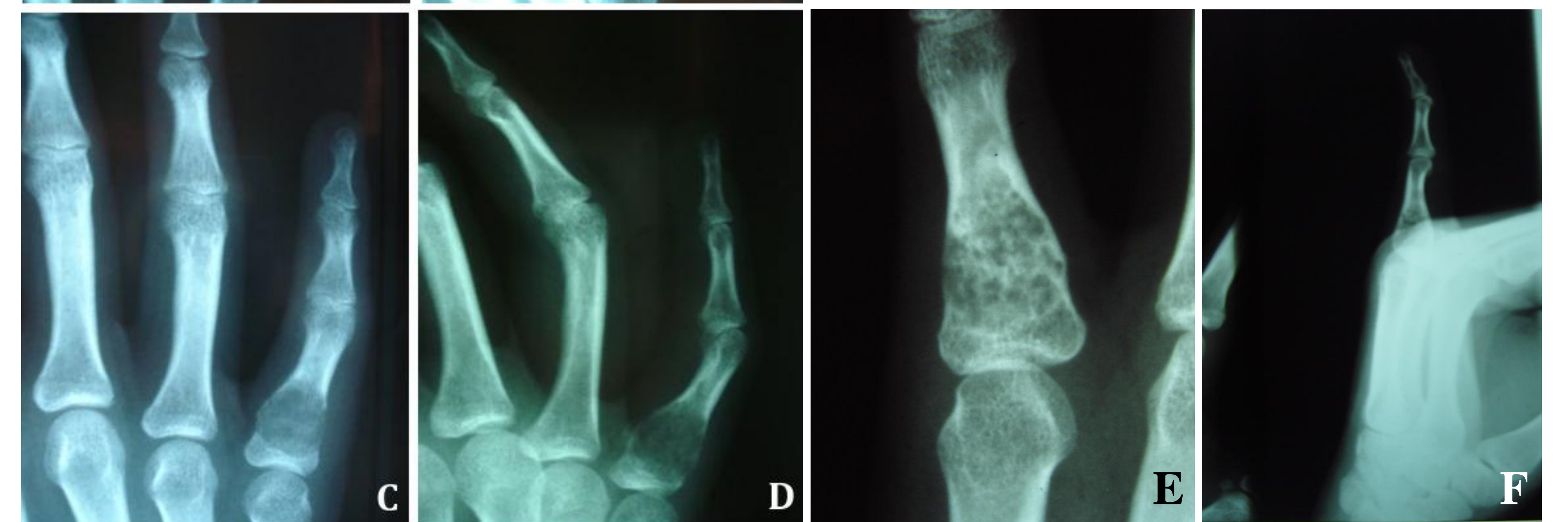


Figure 1 – MCM, female, 18 years old, encondrom at proximal phalange at left 5^o finger. [A] image of the cavity after the removal of encondrom material; [B] at left recipient, material obtained after the cleaning of the cavity and right PLLA grains; [C] cavity filled with PLLA grains (24,9 g).



Figure 2- MCM, female, 18 years old, encondrom at proximal phalange at left 5^o finger. [A-B] pre-operative x-ray; [C -D] 16 days after surgery; [E-F] 4 months after surgery.



RESULTS CASE II

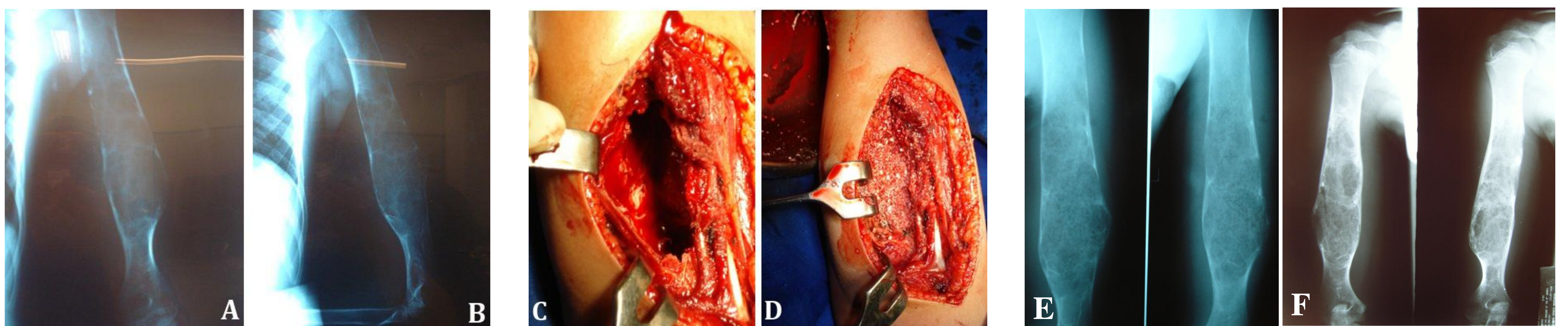


Figure 1 – DN, 12,male, sex, benign tumor arm; [A-B] pre-operative control at surgery day; [C] cavity exposed showing the tumoral component; [D] cavity after filling with PLLA grains (37,8g); [E] X-ray two weeks after surgery; [F] X-ray three weeks after surgery.

CONCLUSION

After one year, the continuous evaluation of the patients showed successful bone healing and tissue integration with PLLA grains. The present study shows that PLLA is an option as bone graft substitute for the treatment of small bone defects.

REFERENCES

The procedures involved in this study were approved by the Ethical Commission of the Medical Sciences School of Campinas State University, São Paulo, Brazil.