Mandible reconstruction can be accomplished in various methods. Some authors reported various reconstruction methods and applied with a good result. There are no methods, which generally recognized as the most appropriate one to use in certain cases. Each method has its own advantages or adverse effects. Four types of reconstruction materials have been used in the Department of Otolaryngology Dr. Soetomo Hospital i.e. Rigid Implantable Cobalt-Chromium Individually Instrument (RICCII), stainless steel reconstruction plate, allogeneic bone graft produced by Dr. Soetomo Bone Bank Centre and Kirschner wire. Since 1987 in cooperation with the Department of Prosthodontics and Department of Oral Surgery Faculty of Dentistry Airlangga University, the RICCII was produced and used for mandible reconstruction after a tumor resection. A retrospective study was done in 53 patients who had undergone reconstructive surgeries after tumor resection in a period of January 1987 to July 2003. The subject consisted of 46 patients suffered from ameloblastoma, 3 patients with osteosarcoma and tongue carcinoma with mandible infiltration were found in 4 cases. Twenty-four patients were reconstructed with RICCII, 26 with stainless steel reconstruction plate, 2 patients with allogeneic bone graft fixed in stainless steel reconstruction plate and a Kirschner wire was used in 1 patients. The aim of this study was to observe the rate of complications and the surgical results in related with function and aesthetic. Complications after mandible reconstruction in case of ameloblastoma were noted as, infection 4 (8.69%), tissues granulation 5 (10.86%), saliva leakage 2 (4.34%), mild trusmus 4 (8.69%), mild swallowing disturbances 4 (8.69%), and 1 case with fracture of the RICCII (2.71%). Only mild complications were found both in RICCII and stainless steel reconstruction plate. No hypersensitive reaction or rejection of the graft materials seen in these cases. Both functional and aesthetic were reached in satisfactory. <br><br>