

DAFTAR PUSTAKA

1. Alberto PL. *Surgical Exposure of Impacted Teeth*. Oral Maxillofac Surg Clin NA [Internet]. 32:561–70. Available from: <https://doi.org/10.1016/j.coms.2020.07.008>
2. Grisar K, Fransen J, Smeets M, Hoppenreijts T, Ghaeminia H, Politis C, et al. Surgically assisted orthodontic alignment of impacted maxillary canines: A retrospective analysis of functional and esthetic outcomes and risk factors for failure. *Am J Orthod Dentofac Orthop*. 2021;159:e461–71.
3. Cassina C, Papageorgiou SN, Eliades T. Open versus closed surgical exposure for permanent impacted canines: A systematic review and meta-analyses. *Eur J Orthod*. 2018;40:1–51.
4. Chu FCS, Li TKL, Lui VKB, Newsome PRH, Chow RLK, Cheung LK. Prevalence of impacted teeth and associated pathologies - A radiographic study of the Hong Kong Chinese population. *Hong Kong Med J*. 2003;9:158–63.
5. Parkin NA, Almutairi S, Benson PE. Surgical exposure and orthodontic alignment of palatally displaced canines: can we shorten treatment time? *Journal of Orthodontics*. 2019.
6. Lempesi E, Pandis N, Fleming PS, Mavragani M. A comparison of apical root resorption after orthodontic treatment with surgical exposure and traction of maxillary impacted canines versus that without impactions. *Eur J Orthod*. 2014;36:690–7.
7. Parkin NA, Milner RS, Deery C, Tinsley D, Smith AM, Germain P, et al. Periodontal health of palatally displaced canines treated with open or closed surgical technique: A multicenter, randomized controlled trial. *Am J Orthod Dentofac Orthop* [Internet]. 2013;144:176–84. Available from: <http://dx.doi.org/10.1016/j.ajodo.2013.03.016>
8. Becker A, Chaushu S. *Surgical Treatment of Impacted Canines What the Orthodontist Would Like the Surgeon to Know*. Oral Maxillofac Surg Clin NA [Internet]. 2015;27:449–58. Available from: <http://dx.doi.org/10.1016/j.coms.2015.04.007>
9. Parkin N, Pe B, Thind B, Shah A, Khalil I, Ghafoor S. Eksposur gigi taring terbuka versus tertutup yang bergeser di atap mulut (Ulasan). 2017;
10. Cassina C, Papageorgiou SN, Ortodontik K, Anak G, Gigi PK, Zurich U. Paparan bedah terbuka versus tertutup untuk gigi taring yang terkena dampak permanen : tinjauan sistematis dan meta-analisis. 2017;1–10.
11. Nancy, P., Kuswandari, S. R. Penatalaksanaan Ortodontik Gigi Inisisivus Sentralis Kiri Atas dengan Impaksi Inverted (. *Dent J Kedokt Gigi*. 2016;10:188–94.

12. Lai CS, Suter VGA, Katsaros C, Bornstein MM. Localization of impacted maxillary canines and root resorption of neighbouring teeth: A study assessing the diagnostic value of panoramic radiographs in two groups of observers. *Eur J Orthod.* 2014;36:450–6.
13. Stabryła J, Plakwicz P, Kukuła K, Zadurska M, Czochrowska EM. Comparisons of different treatment methods and their outcomes for impacted maxillary and mandibular canines: A retrospective study. *J Am Dent Assoc.* 2021;152:919–26.
14. Parkin NA, Almutairi S, Benson PE. Surgical exposure and orthodontic alignment of palatally displaced canines: can we shorten treatment time? *J Orthod.* 2019;
15. Akkuc S, Duruk G, Duman S. Evaluation of impacted canines' localization and adjacent lateral incisors' root resorption with orthopantomography and cone-beam computed tomography. *Oral Radiol* [Internet]. 2021;37:476–86. Available from: <https://doi.org/10.1007/s11282-020-00482-7>
16. Koutzoglou SI, Kostaki A. Effect of surgical exposure technique, age, and grade of impaction on ankylosis of an impacted canine, and the effect of rapid palatal expansion on eruption: A prospective clinical study. *Am J Orthod Dentofac Orthop.* 2013;143:342–52.
17. Yan B, Sun Z, Fields H, Wang L, Luo L. Etiologic factors for buccal and palatal maxillary canine impaction: A perspective based on cone-beam computed tomography analyses. *Am J Orthod Dentofac Orthop* [Internet]. 2013;143:527–34. Available from: <http://dx.doi.org/10.1016/j.ajodo.2012.11.021>
18. Becker A. Palatal displacement of canine is genetic and related to congenital absence of teeth. *J Dent Res.* 1997;76:1526.
19. Alshehri A, Hakami Z, Marran K, Qaysi A, Shabi M, Bokhari A. Unilateral vs Bilateral Maxillary Canine Impaction: A Cone-Beam Computed Tomography Study of Patterns and Associations. *J Contemp Dent Pract.* 2023;24:21–8.
20. Garcovich D, Aiuto R, Lozano Serrano E, Re D. Uncovering and autonomous eruption of palatally impacted canines. *Eur J Paediatr Dent.* 2018;19:300–2.
21. Alejos-Montante K, Martínez-Zumarán A, Torre-Delgadillo G, Rosales-Berber M ángel, Garrocho-Rangel A, Pozos-Guillén A. Early identification of permanent maxillary canine impaction: A radiographic comparative study in a Mexican population. *J Clin Exp Dent.* 2019;11:e282–6.
22. Parkin NA, Freeman J V., Deery C, Benson PE. Esthetic judgments of palatally displaced canines 3 months postdebond after surgical exposure with either a closed or an open technique. *Am J Orthod Dentofac Orthop.*

- 2015;147:173–81.
23. Brorsson Y, Naoumova J. Delayed diagnosis of displaced and impacted canines—a prospective longitudinal study. *Acta Odontol Scand*. 2020;78:165–72.
 24. Wolff J, Rinkenbach R, Grollemund B, Wagner D. Effets de la disjonction maxillaire rapide sur la rétention des canines chez les patients présentant un déficit squelettique transversal maxillaire. *Orthod Fr*. 2017;88:243–50.
 25. Lee JY, Choi YJ, Choi SH, Chung CJ, Yu HS, Kim KH. Labially impacted maxillary canines after the closed eruption technique and orthodontic traction: A split-mouth comparison of periodontal recession. *J Periodontol*. 2019;90:35–43.
 26. Impellizzeri A, Horodynki M, Stefano A De, Guercio-monaco E, Palaia G, Serritella E, et al. applied sciences Disinclusion of Palatally Impacted Canines with Surgical and Photobiomodulating Action of a Diode Laser : Case Series. 2021;
 27. Masthoff M, Gerwing M, Masthoff M, Timme M, Kleinheinz J, Berninger M, et al. Dental Imaging-A basic guide for the radiologist. *RoFo Fortschritte auf dem Gebiet der Rontgenstrahlen und der Bildgeb Verfahren*. 2019;191:192–8.
 28. Valai-Kasim SA, Krishnaswamy NR, Tom B, Thavarajah R. Rotational panoramic radiographs-unusual triple images. *J Clin Exp Dent*. 2015;7:e183–6.
 29. Yeung AWK. Content Analysis of YouTube Videos on Radiographic Anatomy on Dental Panoramic Images. *Healthc*. 2022;10.
 30. Al-Haj Husain A, Oechslin DA, Stadlinger B, Winklhofer S, Özcan M, Schönenegg D, et al. Preoperative imaging in third molar surgery — A prospective comparison of X-ray-based and radiation-free magnetic resonance orthopantomography. *J Cranio-Maxillofacial Surg*. 2023;
 31. Schüler IM, Hennig CL, Buschek R, Scherbaum R, Jacobs C, Scheithauer M, et al. Radiation Exposure and Frequency of Dental, Bitewing and Occlusal Radiographs in Children and Adolescents. *J Pers Med*. 2023;13.
 32. Svenson B, Båth M, Karlsson R. Can adaptive post-processing of storage phosphor plate panoramic radiographs provide better image quality? A comparison of anatomical image quality of panoramic radiographs before and after adaptive processing. *Acta Odontol Scand [Internet]*. 2019;77:328–33. Available from: <https://doi.org/10.1080/00016357.2018.1556801>
 33. Alassiry A. Radiographic assessment of the prevalence, pattern and position of maxillary canine impaction in Najran (Saudi Arabia) population using orthopantomograms – A cross-sectional, retrospective study. *Saudi Dent J [Internet]*. 2020;32:155–9. Available from:

- <https://doi.org/10.1016/j.sdentj.2019.08.002>
34. Stoilov GN, Iovchev SI, Djurkova AA. Surgical orthodontic treatment of impacted teeth. *Folia Med (Plovdiv)*. 2001;43:120–3.
 35. Smailiene D, Kavaliauskiene A, Pacauskiene I, Zasciurinskiene E, Bjerklin K. Palatally impacted maxillary canines: Choice of surgical-orthodontic treatment method does not influence post-treatment periodontal status. A controlled prospective study. *Eur J Orthod*. 2013;35:803–10.
 36. Ericson S, Kurol J. Ericson1988. 1988;283–95.
 37. Zabielskaite G, Varoneckaite M, Smailiene D. Evaluation of Postoperative Pain and Discomfort in Patients Undergoing Surgical Exposure of Impacted Maxillary Canines. *J Oral Maxillofac Res*. 2022;13:1–11.
 38. Lee JS, Yoo KJ, Kim SH, Kim HJ, Nam SH. Factors affecting spontaneous eruption of impacted mandibular first molars after surgical exposure. *Pediatr Dent J [Internet]*. 2018;28:25–32. Available from: <https://doi.org/10.1016/j.pdj.2017.11.002>
 39. Ayers E, Kennedy D, Wiebe C. Clinical recommendations for management of mesiodens and unerupted permanent maxillary central incisors. *Eur Arch Paediatr Dent*. 2014;15:421–8.
 40. Naraghi S, Ganzer N, Bondemark L, Sonesson M. Comparison of post-treatment changes with and without retention in adolescents treated for maxillary impacted canines-a randomized controlled trial. *Eur J Orthod*. 2021;43:121–7.
 41. Chhabra S, Chhabra N, Kaur A, Gupta N. Wound Healing Concepts in Clinical Practice of OMFS. *J Maxillofac Oral Surg*. 2017;16:403–23.
 42. Hao M, Wang D, Duan M, Kan S, Li S, Wu H, et al. Functional drug-delivery hydrogels for oral and maxillofacial wound healing. *Front Bioeng Biotechnol*. 2023;11:1–18.
 43. david BH, Patricia A, arunk K. G CD. Essential tissue healing of the face and neck. Patricia b. shelton USA: peoples medical publishing house; 2009. 16–21 p.
 44. Perry M, Holmes S. Manual of Operative Maxillofacial Trauma Surgery. Manual of Operative Maxillofacial Trauma Surgery. 2014.
 45. Alven S, Aderibigbe BA. Chitosan and cellulose-based hydrogels for wound management. *Int J Mol Sci*. 2020;21:1–30.
 46. Oryan A, Monazzah S, Bigham-Sadegh A. Bone injury and fracture healing biology. *Biomed Environ Sci [Internet]*. 2015;28:57–71. Available from: <http://dx.doi.org/10.3967/bes2015.006>
 47. Wei W, Liu S, Song J, Feng T, Yang R, Cheng Y, et al. MGF-19E peptide

- promoted proliferation, differentiation and mineralization of MC3T3-E1 cell and promoted bone defect healing. *Gene* [Internet]. 2020;749:144703. Available from: <https://doi.org/10.1016/j.gene.2020.144703>
48. Arriola-Guillén LE, Aliaga-Del Castillo A, Ruíz-Mora GA, Rodríguez-Cárdenas YA, Dias-Da Silveira HL. Influence of maxillary canine impaction characteristics and factors associated with orthodontic treatment on the duration of active orthodontic traction. *Am J Orthod Dentofac Orthop*. 2019;156:391–400.
 49. Lee JS, Yoo KJ, Kim SH, Kim HJ, Nam SH. Factors affecting spontaneous eruption of impacted mandibular first molars after surgical exposure. *Pediatr Dent J*. 2018;28:25–32.
 50. Shaik JA, Reddy RK. Review Article Prevention and Treatment of White Spot Lesions in Orthodontic Patients. *Contemp Clin Dent*. 2017;8:11–9.
 51. Hadler-Olsen S, Pirttiniemi P, Kerosuo H, Sjögren A, Pesonen P, Julku J, et al. Does headgear treatment in young children affect the maxillary canine eruption path? *Eur J Orthod*. 2018;40:583–91.
 52. Chunhabundit P, Prateepamornkul P, Arayapisit T, Teavirat N, Tanachotvorapong P, Varrathyarom P, et al. Two-dimensional facial measurements for anterior tooth selection in complete denture treatment. *Heliyon* [Internet]. 2023;9:e20302. Available from: <https://doi.org/10.1016/j.heliyon.2023.e20302>
 53. Juneja M, Devi YBK, Rakesh N, Juneja S. Age estimation using pulp/tooth area ratio in maxillary canines-A digital image analysis. *J Forensic Dent Sci* [Internet]. 2014;6:160–5. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4142405/>&tool=pmcentrez&rendertype=abstract
 54. Refaee SM, Aboulhassan MA, Abdel Aziz O, Emara D, Seif El Dein HM, Moussa BG, et al. Is PRP Effective in Reducing the Scar Width of Primary Cleft Lip Repair? A Randomized Controlled Clinical Study. *Cleft Palate-Craniofacial J*. 2020;57:581–8.
 55. Veena Divya K, Jatti A, Joshi R, Deepu Krishna S. Characterization of dental pathologies using digital panoramic X-ray images based on texture analysis. *Proc Annu Int Conf IEEE Eng Med Biol Soc EMBS*. 2017;592–5.
 56. Fahira A, Hadikrishna I, Riawan L, Lita YA. Characteristics of Upper Third Molar Impaction in Bandung City Population. *ODONTO Dent J*. 2022;9:57.
 57. Chaushu S, Becker T, Becker A. Impacted central incisors: Factors affecting prognosis and treatment duration. *Am J Orthod Dentofac Orthop* [Internet]. 2015;147:355–62. Available from: <http://dx.doi.org/10.1016/j.ajodo.2014.11.019>
 58. Chung DD, Weisberg M, Pagala M. Incidence and effects of genetic factors

- on canine impaction in an isolated Jewish population. *Am J Orthod Dentofac Orthop* [Internet]. 2011;139:e331–5. Available from: <http://dx.doi.org/10.1016/j.ajodo.2010.06.023>
59. Kaczor-Urbanowicz K, Zadurska M, Czochrowska E. Impacted teeth: An interdisciplinary perspective. *Adv Clin Exp Med.* 2016;25:575–85.
 60. Oliver RG, Mannion JE, Robinson JM. Morphology of the maxillary lateral incisor in cases of unilateral impaction of the maxillary canine. *Br J Orthod.* 1989;16:9–16.
 61. Crescini A, Nieri M, Buti J, Baccetti T, Mauro S, Pini Prato GP. Short- and long-term periodontal evaluation of impacted canines treated with a closed surgical-orthodontic approach. *J Clin Periodontol.* 2007;34:232–42.
 62. Zuccati G, Ghobadlu J, Nieri M, Clauser C. Factors associated with the duration of forced eruption of impacted maxillary canines: A retrospective study. *Am J Orthod Dentofac Orthop.* 2006;130:349–56.
 63. Liu D gao, Zhang W lin, Zhang Z yan, Wu Y tang, Ma X chen. Localization of impacted maxillary canines and observation of adjacent incisor resorption with cone-beam computed tomography. *Oral Surgery, Oral Med Oral Pathol Oral Radiol Endodontology.* 2008;105:91–8.
 64. Becker A, Chaushu S. Etiology of maxillary canine impaction: A review. *Am J Orthod Dentofac Orthop* [Internet]. 2015;148:557–67. Available from: <http://dx.doi.org/10.1016/j.ajodo.2015.06.013>
 65. Stewart JA, Heo G, Glover KE, Williamson PC, Lam EWN, Major PW. Factors that relate to treatment duration for patients with palatally impacted maxillary canines. *Am J Orthod Dentofac Orthop.* 2001;119:216–25.
 66. Koenraad G, Lisa DK, Constantinus P, Reinhilde J. Severe complication after autotransplantation of bilateral palatal impacted maxillary canines: a lesson to learn. *Oral Maxillofac Surg Cases.* 2020;6:100148.

DAFTAR LAMPIRAN

Lampiran 1. Persetujuan Etik



REKOMENDASI PERSETUJUAN ETIK Nomor: 0093/PL.09/KEPK FKG-RSGM UNHAS/2023

Tanggal: 24 Mei 2023

Dengan ini menyatakan bahwa protokol dan dokumen yang berhubungan dengan protokol berikut ini telah mendapatkan persetujuan etik:

No. Protokol	UH 17120830	No Protokol Sponsor	
Peneliti Utama	Trio Refiandi	Sponsor	Pribadi
Judul Penelitian	Efektifitas Surgical Exposure Pada Gigi Impaksi Inisisivus, Kaninus Dan Premolar Rahang Atas Prospektif Study (2021-2022)		
No. Versi Protokol	I	Tanggal Versi	15 Mei 2023
No. Versi Protokol		Tanggal Versi	
Tempat Penelitian	1. RSGMP Unhas, 2. RSPTN Unhas, 3. RS Hermina Makassar, 4. RS Ibnu Sina Makassar, 5. RS Grestelina Makassar, 6. RS Undata Palu, 7. RSKDGM Prov. Sulsel, 8. RS Labuan Baji, 9. RS Tenriawaru.		
Dokumen Lain			
Jenis Review	<input type="checkbox"/> Exempted <input checked="" type="checkbox"/> Expedited <input type="checkbox"/> Fullboard	Masa Berlaku 17 Mei 2023-17 Mei 2024	Frekuensi Review Lanjutan
Ketua Komisi Etik Penelitian	Nama: Dr. drg. Marhamah, M.Kes	 Tanda-Tangan	Tanggal
Sekretaris Komisi Etik Penelitian	Nama: drg. Muhammed Ikbal, Sp.Pros	 Tanda-Tangan	Tanggal

Kewajiban peneliti utama:

- Menyerahkan Amandemen Protokol untuk persetujuan sebelum diimplementasikan
- Menyerahkan laporan SAE ke Komisi Etik dalam 24 jam dan dilengkapi dalam 7 hari dan lapor SUSAR dalam 72 jam setelah peneliti utama menerima laporan.
- Menyerahkan laporan kemajuan (*progress report*) setiap 6 bulan untuk penelitian resiko tinggi dan setiap setahun untuk penelitian resiko rendah.
- Menyerahkan laporan akhir setelah penelitian berakhir.
- Melaporkan penyimpangan dari protokol yang disetujui (*protocol deviation/violation*)
- Mematuhi semua aturan yang berlaku.

Lampiran 2. Izin Penelitian



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN, RISET, DAN TEKNOLOGI

UNIVERSITAS HASANUDDIN
FAKULTAS KEDOKTERAN GIGI

Jalan Perintis Kemerdekaan Km. 10, Makassar 90245
Telepon (0411) 586012, Faximile (0411) 584641
Laman www.unhas.ac.id Email fdu@unhas.ac.id

Nomor : 02318/UN4.13/PT.01.04/2023
Hal : Izin Penelitian

15 Juni 2023

Vth.

1. Direktur Rumah Sakit Gigi dan Mulut Pendidikan (RSGMP) Universitas Hasanuddin
2. Direktur Utama Rumah Sakit Perguruan Tinggi Negeri (RSPTN) Universitas Hasanuddin
3. Direktur Rumah Sakit Ibnu Sina
4. Direktur Rumah Sakit Hermina
5. Direktur Rumah Sakit Guestelina
6. Direktur Rumah Sakit Khusus Derauh Gigi dan Mulut (RS KDGM) Provinsi Sulawesi Selatan
7. Kepala Klinik Spesialis Bedah Mulut dan Maksilofasial
Makassar

Dengan hormat kami sampaikan bahwa mahasiswa **Program Studi Pendidikan Dokter Gigi Spesialis (PPDGGS) Ilmu Bedah Mulut dan Maksilofasial** Fakultas Kedokteran Gigi Universitas Hasanuddin bermaksud untuk melakukan penelitian.

Sehubungan dengan hal tersebut, mohon kiranya dapat diberikan izin penelitian kepada peneliti di bawah ini:

Nama / NIM : Trio Refliandi / J045182002
Waktu Penelitian : Juli 2021 s.d. Juli 2022
Tempat Penelitian : Rumah Sakit Gigi dan Mulut Pendidikan (RSGMP) Universitas Hasanuddin, Rumah Sakit Perguruan Tinggi Negeri (RSPTN) Universitas Hasanuddin, Rumah Sakit Ibnu Sina, Rumah Sakit Hermina, Rumah Sakit Guestelina, Rumah Sakit Khusus Derauh Gigi dan Mulut (RSKDGM) Provinsi Sulawesi Selatan dan Klinik Spesialis Bedah Mulut dan Maksilofasial di Kota Makassar
Pembimbing : Prof. Muhammad Ruslin, drg., M.Kes., Ph.D., Sp.BM.M.Subsp.Ostognati-D(K)
Judul Penelitian : Efektivitas Surgical Exposure pada Gigi Impaksi Inisisius Sentral dan Kaninus Rahang Atas di Makassar Tahun 2021-2022 (*Preliminary Study*)

Demikian permohonan kami, atas perhatian dan kerjasama yang baik diucapkan terima kasih.

a.n. Dekan,
Wakil Dekan Bidang Akademik dan Kemahasiswaan



Aeing Habibie Mude, drg., Ph.D., Sp.Pros., Subsp.OGST(K).
NIP 198102072008121002

Tembusan:

1. Dekan FKG Unhas;
2. Kepala Bagian Tata Usaha FKG Unhas.



Lampiran 3. Formulir Persetujuan Setelah Penjelasan



KEMENTERIAN RISET, TEKNOLOGI DAN PENDIDIKAN TINGGI
UNIVERSITAS HASANUDDIN
FAKULTAS KEDOKTERAN GIGI
RUMAH SAKIT GIGI DAN MULUT
KOMITE ETIK PENELITIAN KESEHATAN
Sekretariat : Lantai 2, Gedung Lama RSGM Unhas
JL.Kandea No. 5 Makassar



Contact Person: drg. Muhammad Ikbal, Sp.Paq/Ayu Tryznawati TELP. 081242971011/085294448422

LAMPIRAN 2

FORMULIR PERSETUJUAN SETELAH PENJELASAN

Yang bertanda tangan di bawah ini:

Nama : Ayu Putri

Umur : 15 tahun

Jenis Kelamin : Perempuan

Pekerjaan : pelajar

Telah mendapat keterangan secara terperinci dan jelas mengenai:

1. Penelitian yang berjudul Efektifitas surgical exposure pada gigi impaksi incisivus kaninus dan premolar rahang atas prospektif study (2021-2022)
2. Perlakuan yang akan diterapkan pada subjek
3. Manfaat ikut sebagai subjek penelitian
4. Bahaya yang akan timbul
5. Prosedur Penelitian

Mendapat kesempatan mengajukan pertanyaan mengenai segala sesuatu yang berhubungan dengan penelitian tersebut. Oleh karena itu saya bersedia/tidak bersedia secara sukarela untuk menjadi subjek penelitian dengan penuh kesadaran serta tanpa paksaan.

Demikian pernyataan ini saya buat dengan sebenarnya tanpa ada tekanan dari pihak manapun.

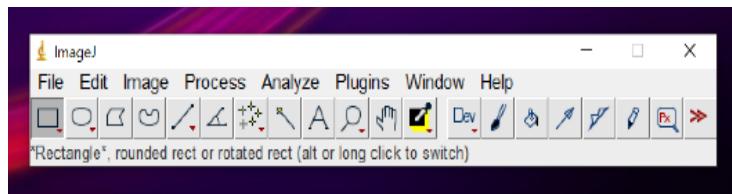
Makassar, 14 September 2021

Peneliti

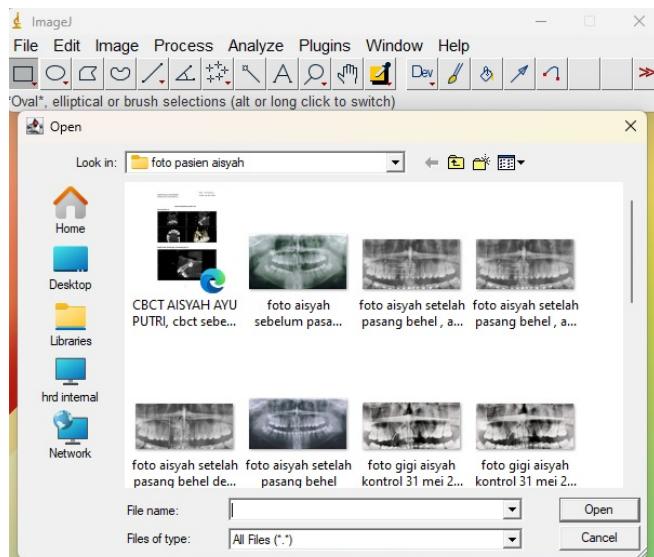
Subjek Penelitian

Lampiran 4. Prosedur Penggunaan Perangkat Lunak Image J

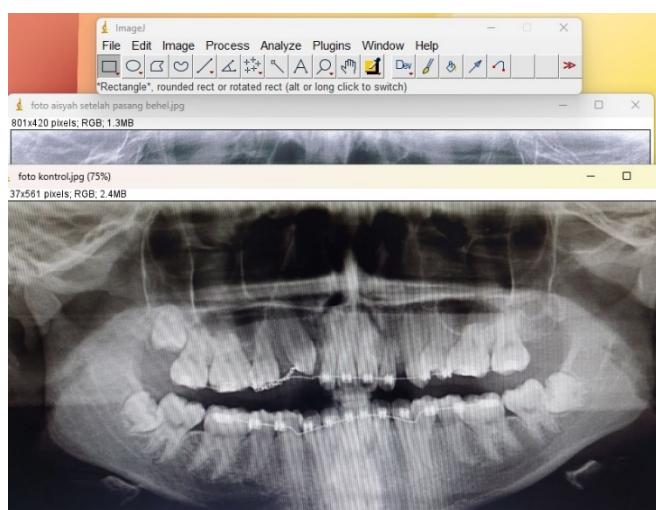
1. Klik ikon Fiji ImageJ pada dekstop. Tampakan dari perangkat lunak ImageJ



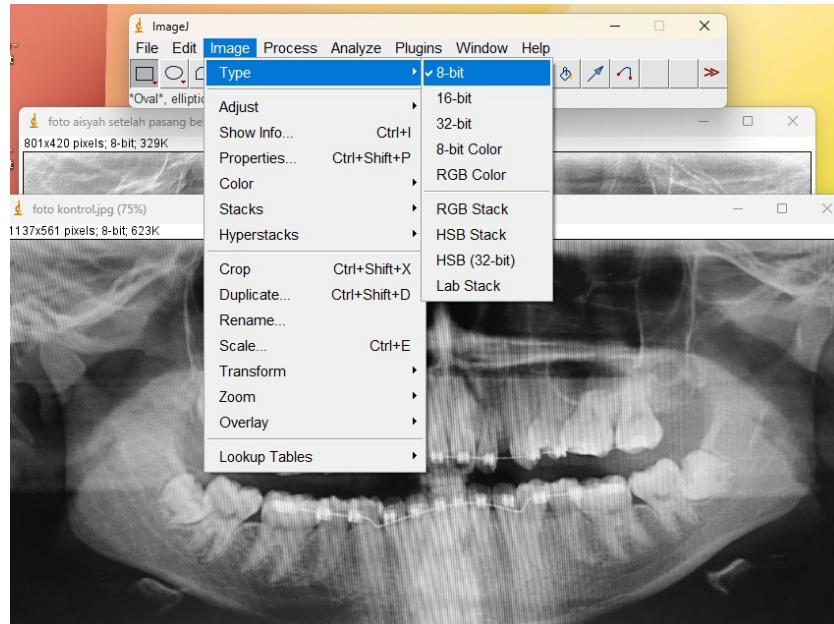
2. Klik File pada Toolbar ImageJ lalu pilih Open atau klik Ctrl+O untuk membuka file gambar foto Panoramik X-Ray dalam format .jpeg.



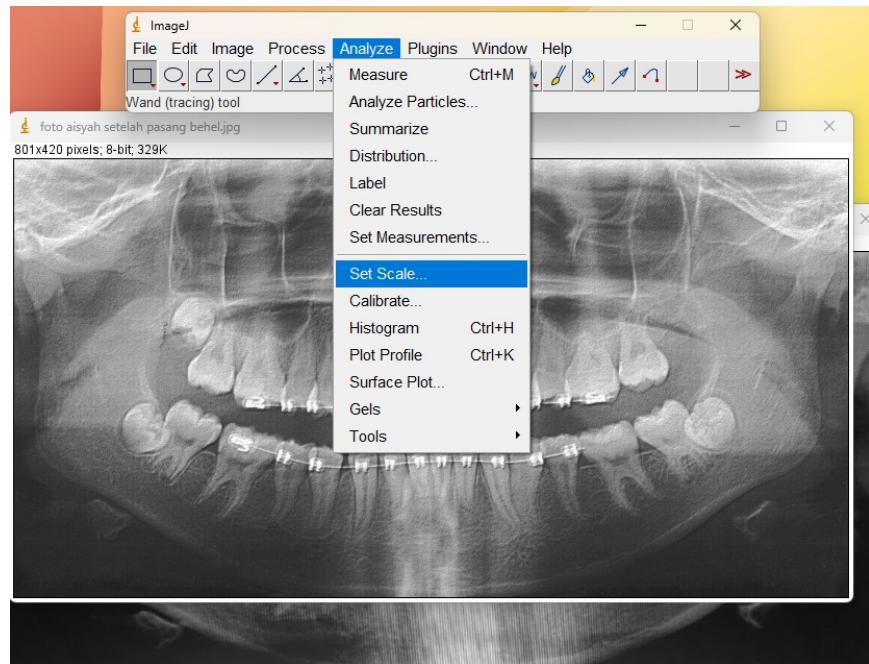
3. Munculkan gambar Panoramik X-Ray sebelum dan setelah operasi secara bersamaan.



4. Pilih Image pada toolbar lalu pilih Type dan pilih 8-bit. Lakukan pada kedua gambar Panoramik X-Ray.

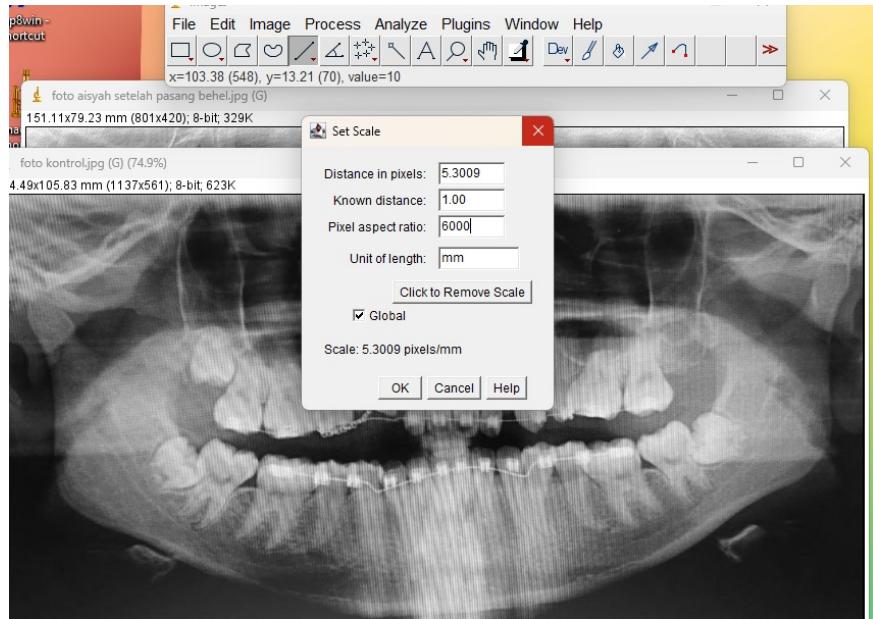


5. Pilih Image pada toolbar lalu pilih Scale atau klik Ctrl+E pada keyboard. Untuk memperbesar resolusi dari gambar Panoramik X-Ray.

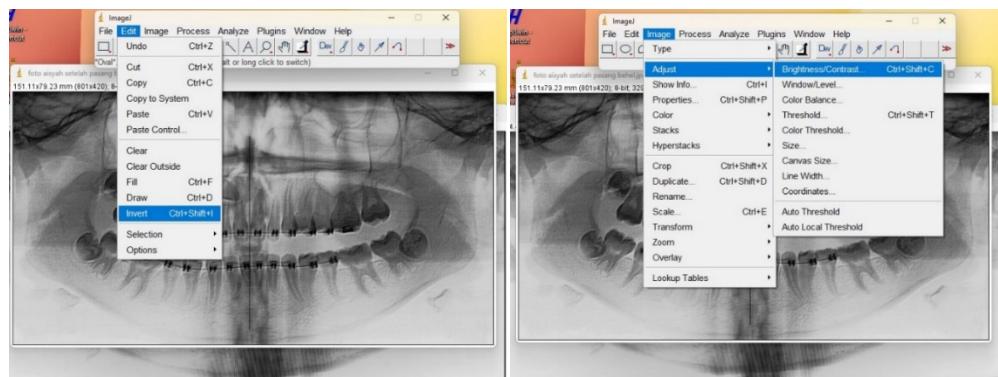


6. Buat pembesaran gambar hingga mendapatkan resolusi gambar diatas 6000 pixel. Hal ini bertujuan untuk mendapatkan gambar yang lebih detail saat

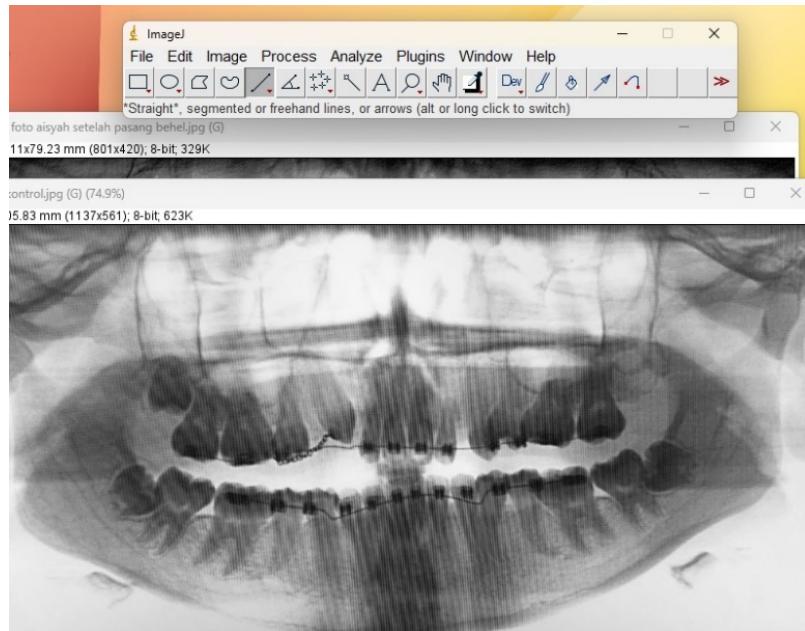
dilakukan zoom-in pada gambar untuk menempatkan titik pengukuran nantinya. Lakukan pada kedua gambar Panoramik X-Ray.



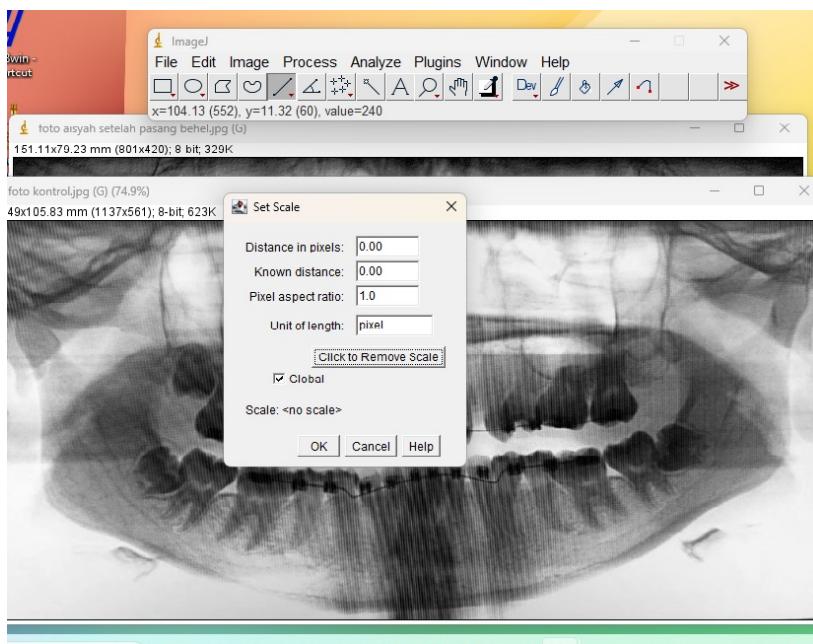
7. Pilih Edit pada toolbar lalu pilih Invert atau klik Ctrl+Shift+I pada keyboard untuk menukar warna pada gambar. Hal ini bertujuan untuk melihat batasan gambar agar lebih mudah dalam memilih objek atau menentukan batas pada gambar Panoramik X-Ray. Dapat juga menambahkan dengan memilih adjust gambar diterangkan atau di tinggikan contrasnya.



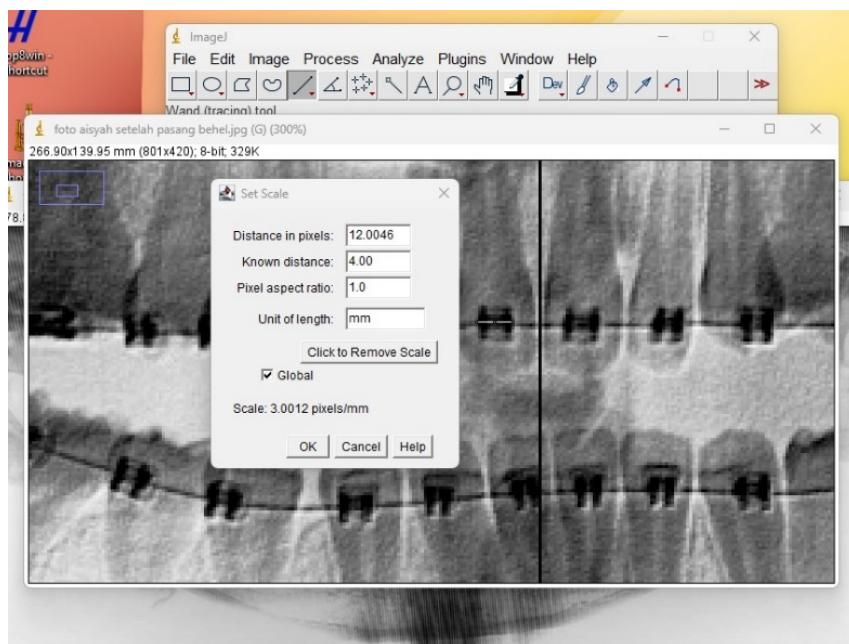
8. Pilih ikon garis pada toolbar, tekan agak lama untuk memunculkan pilihan lalu pilih Straight Line.



9. Pilih Analyze pada toolbar lalu pilih Set Scale, pilih Click to Remove Scale untuk memastikan tidak ada ukuran skala yang digunakan pada gambar Panoramik X-Ray. Lakukan pada kedua gambar Panoramik X-Ray



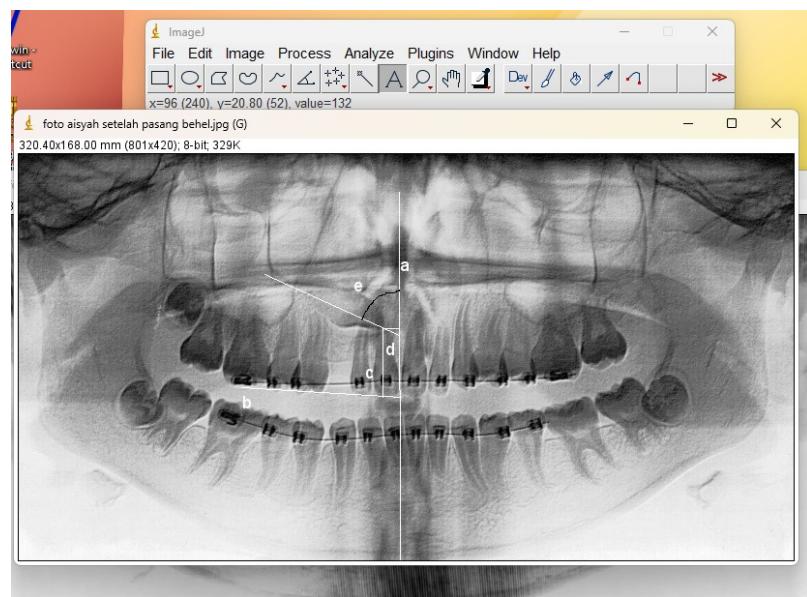
10. Lakukan zoom-in pada gambar dengan menekan + pada keyboard untuk melihat gambar Panoramik X-Ray secara detail. Pilih batas tepi mesial distal dari braket gigi insisivus sentralis lalu kemudian pilih Analyze pada toolbar kemudian pilih Set Scale dan Ubah ukuran skala pada kolom Known distance sesuai dengan jarak mesial distal dari braket insisivus sentralis. Pastikan satuan dari Unit of length telah sesuai kemudian klik OK.



11. Tentukan daerah pengukuran:

- Pertama buat garis midline wajah atau garis tengah pada pertemuan gigi insisivus sentralis
- Kedua buat garis dataran oklusal ke dataran insisal dengan acuan ujung cups mesio-bukal molar pertama ke ujung cups insisal sentralis
- Ketiga dilakukan pengukuran jarak vertikal gigi impaksi kaninus atau insisivus ke dataran oklusal atau insisal dari garis yang sudah ditentukan(menekan *tool staright line*)
- Keempat tentukan jarak ujung cusp gigi impaksi kaninus atau insisivus sentralis ke garis tengah semua dalam hitungan milimeter (mm) dengan (menekan *tool staright line*)

e. Kelima tentukan sudut angulasi gigi impaksi kaninus atau gigi insusvus sentralis dengan cara menarik garis dari ujung akar ke ujung cusp gigi impaksi dengan pertemuan garis *midline* (menekan *angle tool* pada *imageJ*) yang detail dan spesifik pada gambar Panoramik X-Ray setelah operasi pilih *Analyze* lalu pilih *Measure* atau klik Ctrl+M untuk mendapatkan nilai pengukuran. Hal ini dapat dilhat pada gambar dibawah.



Lampiran 5. Data Penilaian

Tinggi Vertikal			Angulasi			Jarak ke Garis Tengah		
Sebelum Operasi	Evaluasi 6 Bulan	Evaluasi 1 Tahun	Sebelum Operasi	Evaluasi 6 Bulan	Evaluasi 1 Tahun	Sebelum Operasi	Evaluasi 6 Bulan	Evaluasi 1 Tahun
Posisi 3	Posisi 3	Posisi 2	>30	>30	15 - 30	<=10 mm	<=10 mm	>10 mm
Posisi 2	Posisi 2	Posisi 1	>30	>30	15 - 30	<=10 mm	<=10 mm	>10 mm
Posisi 3	Posisi 3	Posisi 2	>30	>30	15 - 30	<=10 mm	<=10 mm	>10 mm
Posisi 3	Posisi 3	Posisi 2	>30	>30	15 - 30	<=10 mm	<=10 mm	<=10 mm
Posisi 3	Posisi 2	Posisi 2	>30	>30	15 - 30	<=10 mm	<=10 mm	>10 mm
Posisi 3	Posisi 3	Posisi 2	>30	15 - 30	15 - 30	<=10 mm	<=10 mm	<=10 mm

Tinggi Vertikal			Angulasi			Jarak ke Garis Tengah		
Sebelum Operasi	Evaluasi 6 Bulan	Evaluasi 1 Tahun	Sebelum Operasi	Evaluasi 6 Bulan	Evaluasi 1 Tahun	Sebelum Operasi	Evaluasi 6 Bulan	Evaluasi 1 Tahun
Posisi 2	Posisi 2	Posisi 1	>30	>30	15 - 30	>0 mm	>0 mm	<=0 mm
Posisi 3	Posisi 3	Posisi 2	15 - 30	15 - 30	15 - 30	>0 mm	>0 mm	<=0 mm
Posisi 2	Posisi 2	Posisi 2	>30	>30	15 - 30	<=0 mm	<=0 mm	<=0 mm
Posisi 3	Posisi 3	Posisi 2	>30	>30	15 - 30	>0 mm	>0 mm	<=0 mm
Posisi 2	Posisi 2	Posisi 1	>30	>30	15 - 30	>0 mm	>0 mm	<=0 mm

Lampiran 6. Karakteristik Responden

Jarak Garis Tengah

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<=0 mm	1	9.1	9.1	9.1
	>0 mm	10	90.9	90.9	100.0
	Total	11	100.0	100.0	

Kelompok

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Kaninus	6	54.5	54.5	54.5
	Insisivus	5	45.5	45.5	100.0
	Total	11	100.0	100.0	

Jenis Kelamin

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Laki - laki	4	36.4	36.4	36.4
	Perempuan	7	63.6	63.6	100.0
	Total	11	100.0	100.0	

Letak Impaksi

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Unilateral	11	100.0	100.0	100.0

Posisi Impaksi

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bukal/Labial	6	54.5	54.5	54.5
	Palatal	5	45.5	45.5	100.0
	Total	11	100.0	100.0	

Sudut Angular

		Frequency	Percent	Valid Percent	Cumulative Percent

Valid	15 - 30	1	9.1	9.1	9.1
	>30	10	90.9	90.9	100.0
	Total	11	100.0	100.0	

Tinggi Vertikal

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2.00	5	45.5	45.5
	3.00	6	54.5	100.0
	Total	11	100.0	100.0

Jarak Garis Tengah

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<=0 mm	1	9.1	9.1
	>0 mm	10	90.9	100.0
	Total	11	100.0	100.0

Umur

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<=16 Tahun	6	54.5	54.5
	>16 Tahun	5	45.5	100.0
	Total	11	100.0	100.0

Tindakan Operasi

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Close Surgical	11	100.0	100.0

Lampiran 7. ICC

PENGUKURAN CANINUS

- Tinggi Vertikal

Reliability Statistics

Cronbach's Alpha	N of Items
.910	3

Intraclass Correlation Coefficient

Intraclass Correlation ^b	95% Confidence Interval			F Test with True Value 0			
	Lower Bound	Upper Bound	Value	df1	df2	Sig	
Single Measures	.770 ^a	.350	.960	11.069	5	10	.001
Average Measures	.910 ^c	.617	.986	11.069	5	10	.001

Two-way mixed effects model where people effects are random and measures effects are fixed.

- a. The estimator is the same, whether the interaction effect is present or not.
- b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.
- c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

- Sudut Angular

Reliability Statistics

Cronbach's Alpha	N of Items
.980	3

Intraclass Correlation Coefficient

Intraclass Correlation ^b	95% Confidence Interval			F Test with True Value 0			
	Lower Bound	Upper Bound	Value	df1	df2	Sig	
Single Measures	.942 ^a	.783	.991	50.098	5	10	.000
Average Measures	.980 ^c	.915	.997	50.098	5	10	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.

- a. The estimator is the same, whether the interaction effect is present or not.
- b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.
- c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

- Jarak Garis Tengah

Reliability Statistics

Cronbach's Alpha	N of Items
.900	3

Intraclass Correlation Coefficient

Intraclass Correlation ^b	95% Confidence Interval		F Test with True Value 0				
	Lower Bound	Upper Bound	Value	df1	df2	Sig	
Single Measures	.750 ^a	.312	.956	9.990	5	10	.001
Average Measures	.900 ^c	.576	.985	9.990	5	10	.001

Two-way mixed effects model where people effects are random and measures effects are fixed.

- The estimator is the same, whether the interaction effect is present or not.
- Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.
- This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

PENGUKURAN INCISIVUS

- Tinggi Vertikal

Reliability Statistics

Cronbach's Alpha	N of Items
.969	3

Intraclass Correlation Coefficient

Intraclass Correlation ^b	95% Confidence Interval		F Test with True Value 0				
	Lower Bound	Upper Bound	Value	df1	df2	Sig	
Single Measures	.913 ^a	.645	.990	32.533	4	8	.000
Average Measures	.969 ^c	.845	.997	32.533	4	8	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.

- The estimator is the same, whether the interaction effect is present or not.
- Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.
- This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

➤ Sudut Angulasi

Reliability Statistics

Cronbach's Alpha	N of Items
.998	3

Intraclass Correlation Coefficient

	Intraclass Correlation ^b	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.995 ^a	.974	.999	576.415	4	8	.000
Average Measures	.998 ^c	.991	1.000	576.415	4	8	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.

- a. The estimator is the same, whether the interaction effect is present or not.
- b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.
- c. This estimate is computed assuming the interaction effect is absent, because it is not estimable otherwise.

➤ Jarak Garis Tengah

Reliability Statistics

Cronbach's Alpha	N of Items
.980	3

Intraclass Correlation Coefficient

	Intraclass Correlation ^b	95% Confidence Interval		F Test with True Value 0			
		Lower Bound	Upper Bound	Value	df1	df2	Sig
Single Measures	.944 ^a	.752	.993	51.123	4	8	.000
Average Measures	.980 ^c	.901	.998	51.123	4	8	.000

Two-way mixed effects model where people effects are random and measures effects are fixed.

- a. The estimator is the same, whether the interaction effect is present or not.
- b. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance.

Lampiran 8. Incisivus Pre – Post Test

TINGGI VERTIKAL

Related-Samples Friedman's Two-Way Analysis of Variance by Ranks Summary

Total N	5
Test Statistic	8.000
Degree Of Freedom	2
Asymptotic Sig.(2-sided test)	.018

Ranks

		N	Mean Rank	Sum of Ranks
Tinggi_Vertikal_Post1 - Tinggi_Vertikal_Pre	Negative Ranks	0 ^a	.00	.00
	Positive Ranks	0 ^b	.00	.00
	Ties	5 ^c		
	Total	5		
Tinggi_Vertikal_Post2 - Tinggi_Vertikal_Post1	Negative Ranks	4 ^d	2.50	10.00
	Positive Ranks	0 ^e	.00	.00
	Ties	1 ^f		
	Total	5		
Tinggi_Vertikal_Post2 - Tinggi_Vertikal_Pre	Negative Ranks	4 ^g	2.50	10.00
	Positive Ranks	0 ^h	.00	.00
	Ties	1 ⁱ		
	Total	5		

- a. Tinggi_Vertikal_Post1 < Tinggi_Vertikal_Pre
- b. Tinggi_Vertikal_Post1 > Tinggi_Vertikal_Pre
- c. Tinggi_Vertikal_Post1 = Tinggi_Vertikal_Pre
- d. Tinggi_Vertikal_Post2 < Tinggi_Vertikal_Post1
- e. Tinggi_Vertikal_Post2 > Tinggi_Vertikal_Post1
- f. Tinggi_Vertikal_Post2 = Tinggi_Vertikal_Post1
- g. Tinggi_Vertikal_Post2 < Tinggi_Vertikal_Pre
- h. Tinggi_Vertikal_Post2 > Tinggi_Vertikal_Pre
- i. Tinggi_Vertikal_Post2 = Tinggi_Vertikal_Pre

Test Statistics^a

	Tinggi_Vertikal_Post1 -	Tinggi_Vertikal_Post2 -	Tinggi_Vertikal_Post2 -
	Tinggi_Vertikal_Pre	Tinggi_Vertikal_Post1	Tinggi_Vertikal_Pre
Z	.000 ^b	-2.000 ^c	-2.000 ^c
Asymp. Sig. (2-tailed)	.000	.046	.046

- a. Wilcoxon Signed Ranks Test
 b. The sum of negative ranks equals the sum of positive ranks.
 c. Based on positive ranks.

SUDUT ANGULAR

Related-Samples Friedman's Two-Way Analysis of Variance by Ranks Summary

Total N	5
Test Statistic	8.000
Degree Of Freedom	2
Asymptotic Sig.(2-sided test)	.018

		Ranks	N	Mean Rank	Sum of Ranks
Angulasi_Post1 -	Negative Ranks	0 ^a		.00	.00
	Positive Ranks	0 ^b		.00	.00
	Ties	5 ^c			
	Total	5			
Angulasi_Post2 -	Negative Ranks	4 ^d		2.50	10.00
	Positive Ranks	0 ^e		.00	.00
	Ties	1 ^f			
	Total	5			
Angulasi_Post2 -	Negative Ranks	4 ^g		2.50	10.00
	Positive Ranks	0 ^h		.00	.00
	Ties	1 ⁱ			
	Total	5			

- a. Angulasi_Post1 < Angulasi_Pre
 b. Angulasi_Post1 > Angulasi_Pre
 c. Angulasi_Post1 = Angulasi_Pre
 d. Angulasi_Post2 < Angulasi_Post1

- e. Angulasi_Post2 > Angulasi_Post1
- f. Angulasi_Post2 = Angulasi_Post1
- g. Angulasi_Post2 < Angulasi_Pre
- h. Angulasi_Post2 > Angulasi_Pre
- i. Angulasi_Post2 = Angulasi_Pre

Test Statistics ^a			
	Angulasi_Post1 - Angulasi_Pre	Angulasi_Post2 - Angulasi_Post1	Angulasi_Post2 - Angulasi_Pre
Z	.000 ^b	-2.000 ^c	-2.000 ^c
Asymp. Sig. (2-tailed)	1.000	.046	.046

- a. Wilcoxon Signed Ranks Test
 b. The sum of negative ranks equals the sum of positive ranks.
 c. Based on positive ranks.

JARAK GARIS TENGAH

Related-Samples Friedman's Two-Way Analysis of Variance by Ranks Summary

Total N	5
Test Statistic	8.000
Degree Of Freedom	2
Asymptotic Sig.(2-sided test)	.018

Ranks

		N	Mean Rank	Sum of Ranks
Jarak_Post1 - Jarak_Pre	Negative Ranks	0 ^a	.00	.00
	Positive Ranks	0 ^b	.00	.00
	Ties	5 ^c		
	Total	5		
Jarak_Post2 - Jarak_Post1	Negative Ranks	4 ^d	2.50	10.00
	Positive Ranks	0 ^e	.00	.00
	Ties	1 ^f		
	Total	5		
Jarak_Post2 - Jarak_Pre	Negative Ranks	4 ^g	2.50	10.00
	Positive Ranks	0 ^h	.00	.00

Ties	1 ⁱ		
Total	5		

- a. Jarak_Post1 < Jarak_Pre
- b. Jarak_Post1 > Jarak_Pre
- c. Jarak_Post1 = Jarak_Pre
- d. Jarak_Post2 < Jarak_Post1
- e. Jarak_Post2 > Jarak_Post1
- f. Jarak_Post2 = Jarak_Post1
- g. Jarak_Post2 < Jarak_Pre
- h. Jarak_Post2 > Jarak_Pre
- i. Jarak_Post2 = Jarak_Pre

Test Statistics^a

	Jarak_Post1 -	Jarak_Post2 -	Jarak_Post2 -
	Jarak Pre	Jarak Post1	Jarak Pre
Z	.000 ^b	-2.000 ^c	-2.000 ^c
Asymp. Sig. (2-tailed)	1.000	.046	.046

- a. Wilcoxon Signed Ranks Test
- b. The sum of negative ranks equals the sum of positive ranks.
- c. Based on positive ranks.

Lampiran 9. Kaninus Pre – Post Test

TINGGI VERTIKAL

Related-Samples Friedman's Two-Way Analysis of Variance by Ranks Summary

Total N	6
Test Statistic	10.333
Degree Of Freedom	2
Asymptotic Sig.(2-sided test)	.006

Ranks

		N	Mean Rank	Sum of Ranks
Tinggi_Vertikal_Post1 - Tinggi_Vertikal_Pre	Negative Ranks	1 ^a	1.00	1.00
	Positive Ranks	0 ^b	.00	.00
	Ties	5 ^c		
	Total	6		
Tinggi_Vertikal_Post2 - Tinggi_Vertikal_Post1	Negative Ranks	5 ^d	3.00	15.00
	Positive Ranks	0 ^e	.00	.00
	Ties	1 ^f		
	Total	6		
Tinggi_Vertikal_Post2 - Tinggi_Vertikal_Pre	Negative Ranks	6 ^g	3.50	21.00
	Positive Ranks	0 ^h	.00	.00
	Ties	0 ⁱ		
	Total	6		

- a. Tinggi_Vertikal_Post1 < Tinggi_Vertikal_Pre
- b. Tinggi_Vertikal_Post1 > Tinggi_Vertikal_Pre
- c. Tinggi_Vertikal_Post1 = Tinggi_Vertikal_Pre
- d. Tinggi_Vertikal_Post2 < Tinggi_Vertikal_Post1
- e. Tinggi_Vertikal_Post2 > Tinggi_Vertikal_Post1
- f. Tinggi_Vertikal_Post2 = Tinggi_Vertikal_Post1
- g. Tinggi_Vertikal_Post2 < Tinggi_Vertikal_Pre
- h. Tinggi_Vertikal_Post2 > Tinggi_Vertikal_Pre
- i. Tinggi_Vertikal_Post2 = Tinggi_Vertikal_Pre

Test Statistics^a

	Tinggi_Vertikal_Post1 - Tinggi_Vertikal_Pre	Tinggi_Vertikal_Post2 - Tinggi_Vertikal_Post1	Tinggi_Vertikal_Post2 - Tinggi_Vertikal_Pre
Z	-1.000 ^b	-2.236 ^b	-2.449 ^b
Asymp. Sig. (2-tailed)	.317	.025	.014

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

SUDUT ANGULAR

Related-Samples Friedman's Two-Way Analysis of Variance by Ranks Summary

Total N	6
Test Statistic	10.333
Degree Of Freedom	2
Asymptotic Sig.(2-sided test)	.006

Ranks

		N	Mean Rank	Sum of Ranks
Angulasi_Post1 - Angulasi_Pre	Negative Ranks	1 ^a	1.00	1.00
	Positive Ranks	0 ^b	.00	.00
	Ties	5 ^c		
	Total	6		
Angulasi_Post2 - Angulasi_Post1	Negative Ranks	5 ^d	3.00	15.00
	Positive Ranks	0 ^e	.00	.00
	Ties	1 ^f		
	Total	6		
Angulasi_Post2 - Angulasi_Pre	Negative Ranks	6 ^g	3.50	21.00
	Positive Ranks	0 ^h	.00	.00
	Ties	0 ⁱ		
	Total	6		

a. Angulasi_Post1 < Angulasi_Pre

b. Angulasi_Post1 > Angulasi_Pre

c. Angulasi_Post1 = Angulasi_Pre

d. Angulasi_Post2 < Angulasi_Post1

e. Angulasi_Post2 > Angulasi_Post1

- f. Angulasi_Post2 = Angulasi_Post1
- g. Angulasi_Post2 < Angulasi_Pre
- h. Angulasi_Post2 > Angulasi_Pre
- i. Angulasi_Post2 = Angulasi_Pre

Test Statistics^a

	Angulasi_Post2		
	Angulasi_Post1	-	Angulasi_Post2
	- Angulasi_Pre	Angulasi_Post1	- Angulasi_Pre
Z	-1.000 ^b	-2.236 ^b	-2.449 ^b
Asymp. Sig. (2-tailed)	.317	.025	.014

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

JARAK GARIS TENGAH

Related-Samples Friedman's Two-Way Analysis of Variance by Ranks Summary

Total N	6
Test Statistic	8.000
Degree Of Freedom	2
Asymptotic Sig.(2-sided test)	.018

Ranks

		N	Mean Rank	Sum of Ranks
Jarak_Post1 - Jarak_Pre	Negative Ranks	0 ^a	.00	.00
	Positive Ranks	0 ^b	.00	.00
	Ties	6 ^c		
	Total	6		
Jarak_Post2 - Jarak_Post1	Negative Ranks	0 ^d	.00	.00
	Positive Ranks	4 ^e	2.50	10.00
	Ties	2 ^f		
	Total	6		
Jarak_Post2 - Jarak_Pre	Negative Ranks	0 ^g	.00	.00
	Positive Ranks	4 ^h	2.50	10.00
	Ties	2 ⁱ		

Total	6		
-------	---	--	--

- a. Jarak_Post1 < Jarak_Pre
- b. Jarak_Post1 > Jarak_Pre
- c. Jarak_Post1 = Jarak_Pre
- d. Jarak_Post2 < Jarak_Post1
- e. Jarak_Post2 > Jarak_Post1
- f. Jarak_Post2 = Jarak_Post1
- g. Jarak_Post2 < Jarak_Pre
- h. Jarak_Post2 > Jarak_Pre
- i. Jarak_Post2 = Jarak_Pre

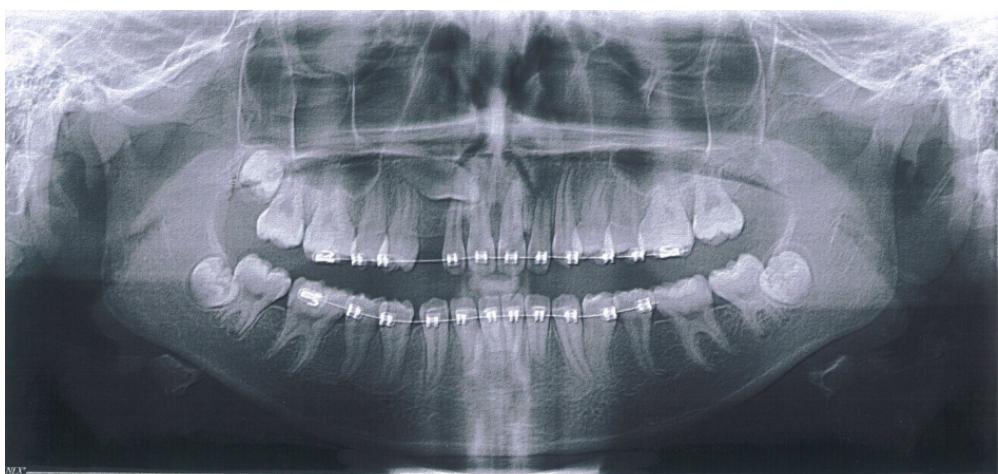
Test Statistics^a

	Jarak_Post1 - Jarak_Pre	Jarak_Post2 - Jarak_Post1	Jarak_Post2 - Jarak_Pre
Z	.000 ^b	-2.000 ^c	-2.000 ^c
Asymp. Sig. (2-tailed)	1.000	.046	.046

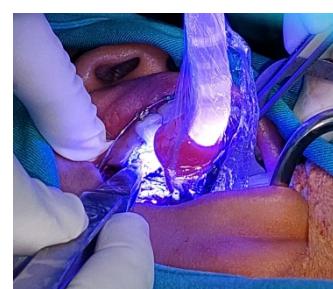
- a. Wilcoxon Signed Ranks Test
- b. The sum of negative ranks equals the sum of positive ranks.
- c. Based on negative ranks.

Lampiran 10. Foto Dokumentasi penelitian

1. Foto intra oral sebelum operasi



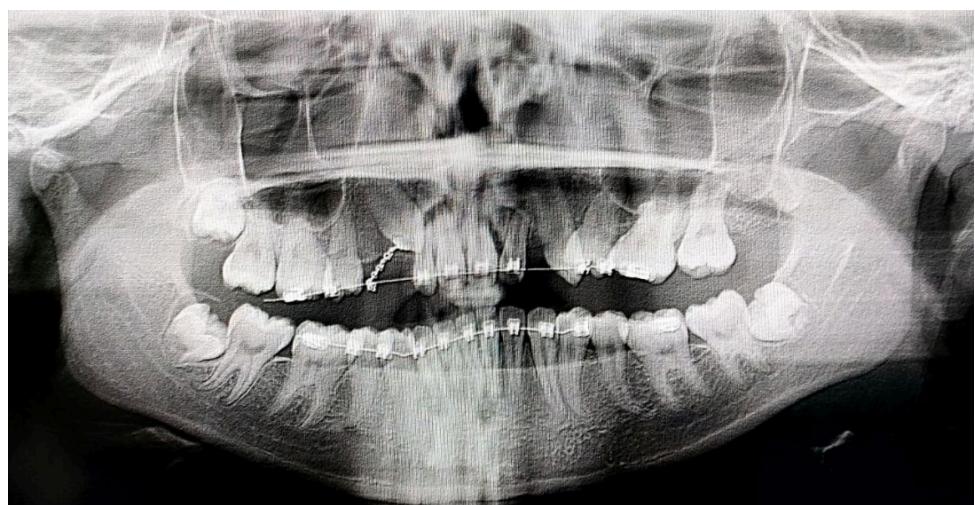
2. Foto intra oral operasi



3. Foto kontrol closed surgical exposure pada hari ke 7.



4. Foto kontrol panoramik closed surgical exposure 1 tahun



Lampiran 11. Riwayat Hidup Penulis

DATA PRIBADI

Nama	: Trio Refliandi	
Tempat, tanggal lahir	: Padang Ganting, 27 Oktober 1985	
Jenis kelamin	: Laki-laki	
Agama	: Islam	
Kewarganegaraan	: Indonesia	
Status Perkawinan	: Menikah	
Alamat	: Jl. Rina III no 8, Sidomulyo Barat, kota pekanbaru RIAU	
Telepon / HP	: 085363587525	
Email	: riodrg@gmail.com	

PENDIDIKAN FORMAL

2019 - sekarang	: Program Studi Spesialis Bedah Mulut dan Maksilofasial Fakultas Kedokteran Gigi, Universitas Hasanuddin, Makassar
2006 - 2013	: Program Dokter Gigi dan profesi, Fakultas Kedokteran Gigi, FakultasKedokteran Gigi, Universitas Baiturrahmah Padang
2002 - 2005	: Sekolah Menengah Atas Negeri 1 Padang Ganting
1999 - 2002	: Sekolah Menengah Pertama Negri 1 Padang Ganting
1993 - 1999	: Sekolah Dasar Negri 23 Padang Ganting

PARTISIPASI SEMINAR DAN PELATIHAN

- Tahun 2018 : P3KGB Bidang Bedah Mulut untuk Dokter Gigi – Modul A, Pekanbaru 2018
- Tahun 2019 : *2nd Indonesian Surgical Orthodontic Scientific Meeting.* Makassar, 4-7 Mei 2019
: Seminar dan Pelatihan Dental Implan, Makassar, 5-6 Juli 2019
: *Advanced Traumatology Life Support (ATLS) 10th Edition.* Makassar, 6-8 September
: Rakernas PABMI ke XIV, tanggal 19-21 September 2019.
Balikpapan, Indonesia
: *Clinical Workshop, Oral and Maxillofacial Trauma.* Makassar, 24 Oktober 2019
- Tahun 2020 : *Makassar Cleft Lip and Scientific Meeting.* Makassar, 10-11 Januari 2020
: Temu Ilmiah Internasional Kedokteran Gigi (*TIIKG*) ke-11.
Makassar, 19-21 Februari 2020
: *Virtual International Symposium Series #1. A Surgical-Orthodontics Combined Treatment.* Seminar virtual via Zoom, 7 Juli 2020.
: *6th International Conference on Biophysical Technology in Dentistry (ICoBTD).* Seminar virtual via Zoom.

28-30 Oktober 2021

: *Dental Implan, Clinical Skill Lab.* Makassar, 9-10 September

2021

: *Laser in Dentistry, Sharing Case and Live Demo.* Makassar,

25-26 November 2021

Tahun 2022 : Kongres Nasional 2020, Persatuan Ahli Bedah Mulut dan Maksilofasial Indonesia. Bandung, via Go To Webinar 28-30 Januari 2022

: *9th Makassar Scientific Meeting.* Makassar, 3-6 Maret 2022

: Workshop Fraktur Maksilofasial. Makassar, 25 Juni 2022

Tahun 2023 : S.O.R.G. e.V. *Management of Condylar Fractures*, Webinar via Go To Webinar, 3 Maret 2023

: S.O.R.G. e.V. *Management of Mandibular Fractures*,

Including Complex Fractures. Webinar via Go To Webinar,

10 Maret 2023.

: S.O.R.G. e.V. *Management of Midface Trauma*, Webinar via

Go To Webinar, 24 Maret 2023

: S.O.R.G. e.V. *Management of Frontal and NOE Fractures*,

Webinar via Go To Webinar, 7 April 2023

PENGALAMAN ORGANISASI

2006 - 2010 : Pengurus BEM Kedokteran Gigi, Universitas Baiturrahmah Padang

2015 - 2019 : Pengurus PDGI Cabang Kota Pekanbaru

PENGALAMAN KERJA

2017 - 2018 : Dokter Gigi Polresta Kota Pekanbaru

2017 - 2018 : Dokter Gigi RS Ibnu Sina Pekanbaru

2014 - 2018 : Dokter Gigi Praktek Mandiri di Kota pekanbaru

Jl. Hr. Subrantas

KARYA ILMIAH

1. Penatalaksanaan gigi Avulsi pada Rahang Atas Anterior: Laporan Kasus, dibawakan pada Rakernas PABMI ke XIV, tanggal 19-21 September 2019, Balikpapan, Indonesia.
2. Penatalaksanaan Sinusitis Dentogen Dan Impaksi Gigi 17,18: Laporan Kasus, dibawakan pada Dies Natalis ke-61 FKG Unpad, Tahun 2020.
3. *Management Of Impacted Maxillary Canines with Closed Surgical Exposure: A Case Report 6th International Conference on Biophysical Technology in Dentistry (ICoBTD)*, Tahun 2021.