



Prof Emrah AYDIN
MD, PhD, MBA

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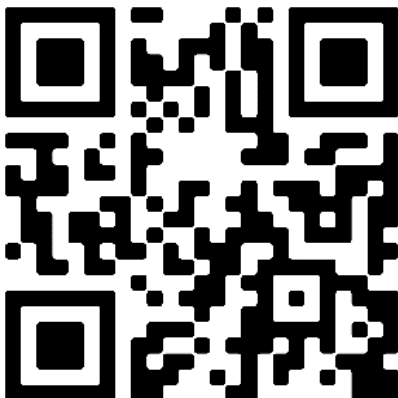
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Clinical Focus

I am a Turkish board-certified pediatric surgeon with broad clinical expertise encompassing the full spectrum of pediatric surgery, including pediatric urology. Following completion of my residency, I have served in both mid-sized state hospitals and major university medical centers, gaining extensive hands-on experience across diverse surgical conditions. Although my primary academic and clinical interest lies in neonatal and fetal surgery, the limited number of attending surgeons, residents, and fellows in my previous institutions necessitated direct involvement in all aspects of pediatric surgical care. This comprehensive exposure has equipped me with strong operative autonomy, clinical adaptability, and leadership in complex case management.

Research Focus

My research centers on fetal and neonatal surgery, with a particular emphasis on congenital diaphragmatic hernia (CDH) and other congenital anomalies. In Türkiye, I founded and directed a multidisciplinary pediatric surgery laboratory integrating experimental models, advanced imaging, molecular approaches, and artificial intelligence. My work spans disease mechanisms, fetal and placental biology, pulmonary vascular development, fetal imaging, biomarker discovery, and the development of diagnostic, prognostic, and therapeutic strategies. In parallel, I have led clinical and outcomes research across a broad range of pediatric surgery and urology, including esophageal atresia, appendicitis, and hypospadias. My research teams have included trainees from undergraduate through PhD levels across medicine, engineering, and data science. Through my work at U.S. fetal centers, I have further expanded this portfolio across translational fetal medicine, including fetal therapy, advanced imaging, experimental models, molecular and proteomic studies, and data-driven clinical research.

Teaching & Mentorship

I have taught undergraduate, master's, and doctoral courses in both English and Turkish, delivering core surgical modules as well as organ and disease specific physiology and pathology classes. After completing the University of Cincinnati's ESL "Teaching Skills for International Teaching Assistants" program (2018), I refined a student-centered, collaborative style that blends lectures, interactive discussions, hands-on activities, and technology-enhanced tools to foster critical thinking, problem-solving, and lifelong curiosity. To date I have supervised one PhD graduate at Koç University and five master's graduates, and I continue to mentor a PhD candidate at Yıldız Technical University.

Clinical & Program Leadership

As the founding director of the Pediatric Surgery Department at Bahçelievler State Hospital, I established a high-functioning surgical unit that performed over 1,300 operations and managed approximately 10,000 outpatient visits within its first 18 months. Despite funding limitations - including the cancellation of a major fetal surgery grant - I maintained continuity of care and clinical growth through strategic resource management and strong team leadership. In addition to this independent leadership role, I have also served as a faculty member within two university hospitals, where I integrated into pre-existing academic surgical teams. I adapted seamlessly to institutional workflows, sharing responsibilities across clinical, educational, and research domains. Depending on context and staffing, I took full independent clinical responsibility or operated collaboratively within multidisciplinary teams. I have led and participated in joint case conferences with departments such as Obstetrics & Gynecology, Neonatology, Pediatric Oncology, Pediatric Endocrinology, and Nephrology - supporting coordinated decision-making for complex surgical patients.

Innovation & Entrepreneurship

Drawing on clinical insights in pediatric care, I founded Fetalist, a digital platform focused on fetal anomaly assessment and surgical planning, and Futureheal, a health-tech start-up developing AI-assisted clinical tools such as Appai, a triage assistant for pediatric abdominal pain. Both ventures are designed to bridge clinical needs with scalable innovation.

International Experience

My international experience spans research and academic appointments in the United States and Europe. These experiences have enabled me to work within multidisciplinary and multicultural teams across fetal surgery, maternal-fetal medicine, bioengineering, imaging, and translational research. They have also supported the development of sustained international collaborations focused on congenital anomalies, fetal therapy, and pediatric surgical research.

Education

PhD, Surgery and Morphological Sciences, Universitat Autònoma de Barcelona, Barcelona, Spain, 2024
The Development of the Lung Vasculature in Congenital Diaphragmatic Hernia and Its Clinical Implications.

Applied Data Science Master's Program, TED University, Ankara, Türkiye

School of Business, Istanbul University, Istanbul, Türkiye

e-MBA, Graduate School of Social Sciences, Bahçeşehir University, Istanbul, Türkiye, 2019
Public Spots in The Marketing of Health Services: A Project in The Field of Fetal Surgery.

School of Health Services Administration, Ataturk University, Erzurum, Türkiye, 2019

Teaching Skills for International Teaching Assistants ESL, University of Cincinnati, Ohio, USA, 2018

Department of Pediatric Surgery, Cerrahpasa Medical Faculty, Istanbul University, Istanbul, Türkiye, 2014
To compare efficiency of esophageal manometry, vector volume analysis and esophagus pH monitoring in patients with gastroesophageal reflux.

Medical School, Marmara University, Istanbul, Türkiye, 2007

Academic & Professional Appointments

Istanbul Aydin University – URL: <https://www.aydin.edu.tr>, Istanbul, Türkiye
Pediatric Surgeon, MD, PhD, MBA, Professor, Department of Pediatric Surgery September 2026 – Present

University of Miami– URL: www.miami.edu, Miami, Florida, USA
Associate Scientist, Fetal Surgery, Department of Obstetrics and Gynecology January 2026 – Present

Yıldız Technical University – URL: <https://bioeng.yildiz.edu.tr/en>, Istanbul, Türkiye
Visiting Professor, Fetal Surgery, Department of Bioengineering September 2025 – August 2026

Riley Children's Hospital, Indiana University – URL: www.iu.edu, Indianapolis, Indiana, USA
Postdoctoral Researcher, Fetal Surgery, Department of Obstetrics and Gynecology January 2025 – December 2025

Cincinnati Children's Hospital Medical Center – URL: www.cchmc.org, Cincinnati, Ohio, USA
Research Scientist, Center for Fetal, Cellular and Molecular Therapy September 2023 – June 2025

Tekirdağ Namık Kemal University School of Medicine – URL: www.nku.edu.tr, Tekirdağ, Türkiye
Pediatric Surgeon, MD, Associate Professor, Department of Pediatric Surgery November 2020 – October 2024

Koç University Research Center for Translational Medicine (KUTTAM) – URL: www.kuttam.ku.edu.tr, Istanbul, Türkiye
Pediatric and Fetal Surgeon, MD, Assistant Professor, Department of Pediatric Surgery November 2018 – November 2020

Koç University Graduate School of Health Sciences – URL: www.gshs.ku.edu.tr, Istanbul, Türkiye
Pediatric and Fetal Surgeon, MD, Assistant Professor, Cellular and Molecular Medicine November 2018 – November 2020

Koç University School of Medicine – URL: www.ku.edu.tr, Istanbul, Türkiye
Pediatric and Fetal Surgeon, MD, Assistant Professor, Department of Pediatric Surgery July 2018 – November 2020

Cincinnati Children's Hospital Medical Center – URL: www.cchmc.org, Cincinnati, Ohio, USA
Research Fellow, Division of Fetal Surgery, Center for Fetal, Cellular and Molecular Therapy August 2016 – October 2018

Istanbul Bahçelievler State Hospital – URL: www.bahcelievlerdh.saglik.gov.tr, Istanbul, Türkiye
Pediatric Surgeon, MD September 2014 – July 2016

Istanbul Bağcılar Training & Research Hospital – URL: www.beh.gov.tr, Istanbul, Türkiye
Pediatric Surgeon, MD September 2014 – August 2017

Hospital Universitari Vall d'Hebron – URL: www.vhebron.net, Barcelona, Spain
Pediatric Surgeon, MD, Observer, April 2012 – May 2012

Futureheal Inc. – URL: www.futureheal.com, Cincinnati, Ohio, USA. Founder. April 2024 – present

Fetalist Bilişim Teknolojileri A.S – URL: www.fetal.ist, İstanbul, Türkiye. Founder. July 2020 – present

Grants

Tubitak 1001 – The Scientific and Technological Research Projects Funding Program, 2026, *Principal investigator*

Yıldız Technical University Scientific Research Committee, 2025, *Co- Principal investigator*

Tubitak 1005 – National New Ideas and New Products Research Funding Program, 2024, *Principal investigator*

Yıldız Technical University Scientific Research Committee, 2023, *Researcher*

Tekirdağ Namık Kemal University Scientific Research Committee, 2022, *Principal investigator*

Tubitak 2219 Postdoctoral Fellowship Program, 2022, *Researcher*

Tubitak 2224 International Scientific Meetings Fellowship Program, 2022, *Principal investigator*

Tubitak 2219 Postdoctoral Fellowship Program, 2021, *Researcher*

Tubitak 1002 – Short Term R&D Funding Program, 2021, *Principal investigator*

Tubitak 2209 – National/International Research Projects Fellowship Program for Undergraduate Students, 2020, *Advisor*

Istanbul Development Agency, 2019, *Principal investigator*

Tubitak 1002 – Short Term R&D Funding Program, 2019, *Principal investigator*

Koç University Seed Fund, 2019, *Principal investigator*

Tubitak 2209 – National/International Research Projects Fellowship Program for Undergraduate Students, 2019, *Advisor*

KWORKS Enterprise Incubation Program, 2019, *Principal investigator*

Istanbul Development Agency, 2016, *Principal investigator*

Tubitak 2219 Postdoctoral Fellowship Program, 2016, *Researcher*

Turkish Educational Foundation Dr. Orhan Birman Medical Scholarship, 2015, *Researcher*

Istanbul University Scientific Research Committee, 2012, *Researcher*

Research Experience

AI-Assisted Quantitative Phenotyping of Renal–Pulmonary Developmental Abnormalities in Congenital Urinary System Anomalies Using Fetal MRI and Prediction of Postnatal Outcomes (RePul-FetalAI). Principal investigator. 2026 – Present.

The EFLA Trial: Emergent Fetoscopic Laser Ablation for Stage V Twin–Twin Transfusion Syndrome: A Prospective Two-Arm Feasibility Study. Co-investigator. 2026 – Present.

Prenatal Maternal Administration of Risdiplam for Fetuses with Genetically Confirmed Spinal Muscular Atrophy: A Phase I Open-Label Safety and Feasibility Trial (PRISM Study). Co-investigator. 2026 – Present.

The Placenta–Lung Vascular Axis in Congenital Diaphragmatic Hernia: Redefining the Developmental Origins of Pulmonary Hypertension. Co-investigator. 2026 – Present.

Fetal Lung Imaging Guided by Hybrid Intelligence and Transformative Reconstruction (FLIGHT). Co-investigator. 2026 – Present.

Decoding the Placental Origins of Autism: Multi-Omic and AI-Guided Fetal Brain Trajectories in High-Risk Pregnancies. Co-investigator. SFARI proposal. 2026.

AI-Assisted Fetal Hydrocephalus Modeling and MR-Guided Shunt Strategy Development: Towards Sustainable Prenatal Neurointervention. Principal investigator. 2026 – Present.

A Proprietary, Germline-Sparing Prenatal CNS Delivery Platform for AAV Gene Therapeutics in Spinal Muscular Atrophy. Co-investigator. 2026.

Maternal and Neonatal Outcomes Following Previa Preterm Premature Rupture of Membranes: A Retrospective Cohort Study. Co-investigator. 2026 – Present.

The UHealth Jackson Fetal Care Registry of Congenital Fetal Anomalies and Fetal Interventions. Co-investigator. 2026 – Present.

Pilot Trial of Fetal Endoscopic Tracheal Occlusion in Severe and Extremely Severe Congenital Diaphragmatic Hernia. Co-investigator. 2026 – Present.

Correlation of Gestational Age and Infant Mortality in Low-Birth-Weight Infants. Co-Principal investigator. 2026 – Present.

Fetal Neurosurgery in Congenital CNS Anomalies: Translational and Clinical Perspectives. Principal investigator. 2024 – 2028.

AI Based National Pediatric Surgery Database. Principal investigator. 2023 – 2028.

MR-Guided Fetal Intervention for Congenital Hydrocephalus. Principal investigator. 2021 – 2028.

Pulmonary Vascular Development in a CDH Sheep Model. Principal investigator. 2020 – 2027.

Placental Changes in Congenital Diaphragmatic Hernia. Principal investigator. 2019 – 2027.

Multi-Center Outcomes Research in Esophageal Atresia: Analysis from the Turkish Esophageal Atresia Registry. Co-Principal investigator. 2019 – 2023.

Preoperative Diagnosis of Acute Appendicitis in Children by Machine Learning. Principal investigator. 2019 – 2023.

Management and Outcomes of Congenital Anomalies in Low-, Middle- and High-Income Countries: A Multicenter, International, Prospective Cohort Study. Global Pediatric Surgery Network. International Study. Co-Principal investigator. 2019 - 2021.

DHREAMS: Diaphragmatic Hernia Research & Exploration; Advancing Molecular Science. Co-Principal investigator. 2018.

Mechanistic Studies of Lung Developmental Responses to Fetal Tracheal Occlusion. Researcher. 2018 - 2020.

Proteomic Biomarker Discovery in Experimental Models of Congenital Diaphragmatic Hernia. Researcher. 2017.

Advanced Imaging Approaches for Fetal Pulmonary Vascular Development in Rat Models. Co-Principal investigator. 2017 - 2024.

Evaluation of Endoscopic Management Strategies in Pediatric Hydrocephalus. Researcher. 2017.

Development of a Novel Transuterine Fetal Tracheal Occlusion Technique in a Murine Model. Co-Principal investigator. 2017 - 2022.

Surgical Strategies and Postnatal Outcomes in Congenital Diaphragmatic Hernia: A Multi-dimensional Clinical Investigation. Co-Principal investigator. 2016 - 2022.

Intussusception in Children. Co-Principal investigator. 2016.

Surveillance System on Foreign Body Injuries in Children. The Susy Safe project. Co-Principal investigator. 2015 - 2023.

Biomarkers for Predicting Mucosal Injury Severity Following Pediatric Caustic Ingestion. Co-Principal investigator. 2012 - 2017.

Congenital Diaphragmatic Hernia in Nitrofen Induced Rat Model. Principal investigator. 2012.

Multimodal Diagnostic Evaluation of Pediatric Gastroesophageal Reflux. Principal investigator. 2012.

Exploration of Intravesical Antireflux Treatment in Rabbits. Principal investigator. 2010.

Pediatric Surgery

Mohamad Abi Nassif, **Emrah Aydın**, Jose L. Peiro. **Embryologic and Developmental Origins of Gastroschisis: A Scoping Review of Historical and Contemporary Theories**. *Children* 2026, 13(2), 270; <https://doi.org/10.3390/children13020270>

Mohamad Abi Nassif, **Emrah Aydın**, Jose L. Peiro. **A Historical Review of Gastroschisis: Evolution of Understanding, Diagnosis, and Surgical Management**. *Children*. 2025 Dec 20;13(1):13. doi: 10.3390/children13010013.

Emrah Aydın, Taha Eren Sarnic, İnan Utku Turkmen et al. **Diagnostic Accuracy of a Machine Learning-Derived Appendicitis Score in Children: A Multicenter Validation Study**. *Children* 2025, 12, 937. <https://doi.org/10.3390/children12070937>

Madadi-Sanjani O, Kuebler J, Brendel J, Costanzo S, Granström A.L., Aydın E, et al. **Validation of the Clavien-Madadi Classification for Unexpected Events in Pediatric Surgery: A Collaborative ERNICA Project**. *Journal of Pediatric Surgery*, 2024 59 (9). <https://doi.org/10.1016/j.jpedsurg.2024.03.022>.

Ozturun CI, Durakbaşı ÇU, Soyer T, et al. **Determining the Risk Factors for Anastomotic Stricture Development After Esophageal Atresia Repair: Results from The Turkish Esophageal Atresia Registry**. *European Journal of Pediatric Surgery*, 2024 Jun. DOI: 10.1055/a-2340-9078. PMID: 38848757.

Emrah Aydın, Furkan Durmus, Nilhan Torlak et al. **Pulmonary Vasculature Development in Congenital Diaphragmatic Hernia: A Novel Automated Quantitative Imaging Analysis**. *Pediatric Surgery International*, 2024, 40:81. <https://doi.org/10.1007/s00383-024-05643-x>.

Emrah Aydın, Narmina Khanmammadova, Birol Aslanyürek et al. **A Simple Machine Learning Approach for Preoperative Diagnosis of Esophageal Burns After Caustic Substance Ingestion in Children**. *Pediatric Surgery International*, 2023 Dec 13;40(1):20. doi: 10.1007/s00383-023-05602-y.

Çiğdem Ulukaya Durakbaşı, Tutku Soyer, ..., **Emrah Aydın** et al. **Esophageal Atresia Associated with Congenital Duodenal Obstruction: Turkish Esophageal Atresia Registry (TEAR) Evaluation**. *Eur J Pediatr Surg*. <https://doi.org/10.1055/a-2123-5026>.

Cunera M.C. de Beaufort, **Emrah Aydın** et al. **Transitional care for patients with congenital colorectal diseases: An EUPSA network office, ERNICA, and eUROGEN joint venture**. *Journal of Pediatric Surgery*. <https://doi.org/10.1016/j.jpedsurg.2023.06.008>.

Hatice Cömert, Doğuş Güney, **Emrah Aydın** et al. **The effect of postoperative ventilation strategies on postoperative complications and outcomes in patients with esophageal atresia: Results from the Turkish Esophageal Atresia Registry**. *Pediatric Pulmonology*. 2022;1–9. doi: 10.1002/ppul.26251

Emrah Aydın, Nilhan Torlak, Beth Haberman et al. **The Survivorship Bias in Congenital Diaphragmatic Hernia**. *Children* 2022, 9, 218. <https://doi.org/10.3390/children9020218>.

Global PaedSurg Research Collaboration. **Mortality from gastrointestinal congenital anomalies at 264 hospitals in 74 low-income, middle-income, and high-income countries: a multicentre, international, prospective cohort study**. *The Lancet* 2021; 398 (10297); 325-339. Doi:10.1016/S0140-6736(21)00767-4

Fatih Akova, **Emrah Aydın**, Murat Binar. **Management of Uncommon Neck and Axillary Lipoblastomas in Children**. *Turkish Clinics J Pediatrics* 2021;30(2):99-104, doi: 0.5336/pediatr.2020-76782.

Emrah Aydın, Giulia Lorenzoni, Danila Azzolina et al. **Comparing Foreign Body Injuries Patterns between Türkiye and European Countries: are Female Turkish Children More Vulnerable?** *International Journal of Pediatric Otorhinolaryngology* 2021 (142), 110605, doi:10.3791/61772. <https://doi.org/10.1016/j.ijporl.2020.110605>.

Tutku Soyer, Can Özturun, **Emrah Aydın** et al. **The Effect of Azygos Vein Preservation on Postoperative Complications After Esophageal Atresia Repair: Results from the Turkish Esophageal Atresia Registry**. *Journal of Pediatric Surgery* 2020, 6:11. <https://doi.org/10.1016/j.jpedsurg.2020.12.008>.

Emrah Aydın, İnan Utku Türkmen, Gözde Namlı et al. **A Novel and Simple Machine Learning Algorithm for Preoperative Diagnosis of Acute Appendicitis in Children**. *Pediatric Surgery International*, 2020; 36(6), 735-742 doi:10.1007/s00383-020-04655-7

Emrah Aydın, C Bilge Kayasandik, Asligul Aksan et al. **Automated Quantitative Analysis of Pulmonary Vasculature in Congenital Diaphragmatic Hernia using Deep Learning.** J Vis Exp. 2026 May 8;(231). doi: 10.3791/70428.

Nilhan Torlak, Marc Oria, ..., **Emrah Aydın**. **An overview of the placenta's role in the development of congenital diaphragmatic hernia.** Front Pediatr. 2026 Mar 10;14:1783068. doi: 10.3389/fped.2026.1783068.

Emrah Aydın, Hiba Mustafa. **Evaluating the Role of Artificial Intelligence in Fetal Medicine.** Clinical Obstetrics and Gynecology, December 4, 2025. DOI: 10.1097/GRF.0000000000000981

Emrah Aydın, Jose L Peiro, Monuira Habli. **Closing the Gap: Prenatal Repair and the Reimagined Future of Spina Bifida.** Clinical Obstetrics and Gynecology, July 23, 2025. DOI: 10.1097/GRF.0000000000000960

Marcio Lopes Miranda, Renato Ximenes, ... **Emrah Aydın et al.** **Safety and effectiveness of fetal myelomeningocele repair: Case series analysis using an exteriorized uterus and a fetoscopic approach.** Fetal Diagnosis and Therapy. <https://doi.org/10.1159/000546549>

Emrah Aydın, Soner Duru, Marc Oria, Jose L Peiro. **Advances in prenatal surgical management of congenital aqueductal stenosis: A bench to bedside approach.** Semin Fetal Neonatal Med. 2024 Oct 19;101540. doi: 10.1016/j.siny.2024.101540.

Vincent Serapiglia, Chad A. Stephens, Rashika Joshi, **Emrah Aydın**. **Fetal Tracheal Occlusion Increases Lung Basal Cells via Increased Yap Signaling.** Frontier in Pediatrics 2022; doi: 10.3389/fped.2021.780166

Emrah Aydın, Rashika Joshi, Marc Oria et al. **Transuterine Fetal Tracheal Occlusion Model in Mice.** J. Vis. Exp 2021 (168), e61772, doi:10.3791/61772. doi: 10.3791/61772.

Emrah Aydın, Nilhan Torlak, Alkim Yildirim, et al. **Reversible Fetal Tracheal Occlusion in Mice: A Novel Minimal Invasive Technique.** Journal of Surgical Research 2021; 260:278-283. <https://doi.org/10.1016/j.jss.2020.11.080>

Mehmet Ali Özen, Mehmet Taşdemir, **Emrah Aydın**, et al. **Is there a unique symptom in lower urinary tract dysfunction in children?** Lower Urinary Tract Symptoms. 2020;1-7. DOI: 10.1111/luts.12363.

Emrah Aydın, Heather Nolan, Jose L Peiro et al. **When primary repair is not enough: A comparison of synthetic patch versus muscle flap repair for large congenital diaphragmatic hernia.** Pediatric Surgery International, 2020; 36(4):485-491. 1-7. Doi: 10.1007/s00383-020-04634-y.

Emrah Aydın, Oğuz Özler, Patricia Burns et al. **Left congenital diaphragmatic hernia associated musculoskeletal deformities.** Journal of Ped Surgery International. 2019; 35:1265-70. doi: 10.1007/s00383-019-04548-4

Heather Nolan, **Emrah Aydın**, Jason Frischer et al. **Hemorrhage After On-ECMO Repair of CDH is Equivalent for Muscle Flap and Prosthetic Patch.** Journal of Ped Surgery. 2019; 54(10), 2044-2047. <https://doi.org/10.1016/j.jpedsurg.2019.04.025>

Emrah Aydın, Patricia Burns, Beth Rymeski et al. **Congenital Diaphragmatic Hernia: The Good, The Bad and The Tough.** Pediatric Surgery International, 35(3), 303-313. Doi: 10.1007/s00383-019-04442-z

Emrah Aydın, Brittany Levy, Marc Oria et al. **Optimization of Pulmonary Vasculature Tridimensional Phenotyping in The Rat Fetus.** Nature Scientific Reports. 2019 (9):1244. Doi:10.1038/s41598-018-37906-8

Jose L Peiro, Marc Oria, **Emrah Aydın** et al. **Proteomic Profiling of Tracheal Fluid in an Ovine Model of Congenital Diaphragmatic Hernia and Tracheal Occlusion.** AJP Lung, 2018. doi:10.1152/ajplung.00148.2018

Soner Duru, Jose L Peiro, Marc Oria, **Emrah Aydın** et al. **Successful endoscopic third ventriculostomy in the management of hydrocephalus and outcome analysis in 51 children.** Child Nervous System, 2018, 34(8), 1521-1528. doi:10.1007/s00381-018-3811-0.

Emrah Aydın, Rashika Joshi, Marc Oria et al. **Fetal Tracheal Occlusion in Mice: A Novel Transuterine Method.** Journal of Surgical Research 2018 (229), 311-5. doi:10.1016/j.jss.2018.04.028.

[Full Publication List](#)

Chapters

Emrah Aydın, Birol Aslanyürek, Kaan Kemal Polat. **Çocuk Cerrahisinde Klinik Metinlerin Yapılandırılması**. Leyla Şener ve ark. (ed), Sağlıkta Yapay, İstanbul Tıp Kitapevi, Türkiye 2025.

Emrah Aydın, Birol Aslanyürek. **Analysis of Lung Structure with Mathematical Modeling in Congenital Diaphragmatic Hernia**. Can Özlü ve ark. (ed), Sağlıkta Yapay Zeka Uygulamaları, Akademisyen Türkiye 2021.

Emrah Aydın, Cihan Bilge Kayasandık, Aslıgül Aksan, Mustafa Ekrem Erakın. **Fetal Lung Characterization in Congenital Diaphragmatic Hernia with Image Processing Methods**. Can Özlü ve ark. (ed), Sağlıkta Yapay Zeka Uygulamaları, Akademisyen Türkiye 2021.

Emrah Aydın, Nilhan Torlak. **Experimental Animal Models in Pediatric and Fetal Surgery**. Ejder Saylav Bora, Can Özlü (ed), Experimental Animal Models, Akademisyen Türkiye 2020.

Emrah Aydın. Fetal Surgery. I Veysel Fenkci, Umit Cabus (ed), Obstetrics and Gynecology, Akademisyen Türkiye 2019.

Jose L Peiró, **Emrah Aydın. Meconium Peritonitis**. Prem Puri (ed), *Pediatric Surgery*, Springer-Verlag GmbH Germany 2017. <https://doi.org/10.1007/978-3-662-43588-5>

Presentations

Nilhan Torlak, Fernando Ferrer-Marquez, ..., **Emrah Aydın. Placental vascular permeability is impaired in nitrofen-induced congenital diaphragmatic hernia rat model**. European Pediatric Surgeons' Association Congress, May 21st – 24th, 2025 Croatia.

Gamze Altunsaçan, Birol Aslanyürek, **Emrah Aydın. Feature extraction from patient data for diagnosing pediatric patients**. International Congress of New Searches in Sciences, June 8-9th, 2024 İstanbul, Türkiye.

Alihan Yılmaz, Selmahan Selim, **Emrah Aydın. Prediction of Major Inguinal Canal Pathologies Using Machine Learning Algorithms**. International Researchers, Statisticians, and Young Statisticians Congress November 2-5th, 2023 İstanbul, Türkiye.

Emrah Aydın, Narmina Khanmammadova, Birol Aslanyürek et al. **Simple machine learning approach for preoperative diagnosis of esophageal burns after caustic substance ingestion in children**. 24th European Pediatric Surgeons' Association Congress, June 7-10th, 2023, İzmir, Türkiye.

Emrah Aydın, Taha Eren Sarıç, Ufuk Ateş et al. **Presumption of complicated appendicitis in children and predicting with machine learning algorithms**. 23rd European Pediatric Surgeons' Association Congress, June 29th-July 2nd, 2022, Tel Aviv, Israel.

Emrah Aydın, Furkan Durmuş, Nilhan Torlak et al. **Characterization of lung vasculature in the rat fetus with congenital diaphragmatic hernia**. 23rd European Pediatric Surgeons' Association Congress, June 29th-July 2nd, 2022, Tel Aviv, Israel.

Taha Eren Sarıç, Ufuk Ateş, **Emrah Aydın et al. Presumption of complicated appendicitis in children and predicting with machine learning algorithms**. 38th National Pediatric Surgery Congress, November 25-28th, 2021, Susesi Hotel, Antalya, Türkiye.

Emrah Aydın, Furkan Durmuş, Nilhan Torlak et al. **Determination of the difference of branching in fetal lung vessels in the rat with congenital diaphragmatic hernia**. 38th National Pediatric Surgery Congress, November 25-28th, 2021, Susesi Hotel, Antalya, Türkiye.

Brian M. Varisco, Chad Stephens, **Emrah Aydın et al. Yap Activation and Basal Cell Expansion in Mouse and Rabbit Models of Fetal Tracheal Occlusion**. American Thoracic Society International Conference. May 17-22nd, 2019, Dallas, USA.

Emrah Aydın, Rashika Joshi, Marc Oria et al. **Fetal Tracheal Occlusion in Mice: A Novel Transuterine Method**. 19th European Pediatric Surgeons' Association Congress. June 20th – 23rd, 2018, Paris, France.

[Full Presentation List](#)

Undergraduate

Alev Gökdemir, 1st-year psychology student, *Psychological analysis of pediatric surgery patients*, 2019-2020, Koç University, Istanbul, Türkiye

Alkım Yıldırım, 2nd-year medical student, *Reversible tracheal occlusion in mice*, 2019-2020, Koç University, Istanbul, Türkiye

Aslıgül Aksan, 4th-year biomedical engineering student, *Mapping of lung vasculature in human*, 2019-2020, Medipol University, Istanbul, Türkiye

Bacel Aldabash, 4th-year biomedical engineering student, *Mapping of placental vasculature in rat*, 2019, Medipol University, Istanbul, Türkiye

Cristiana Riboni, 6th-year medical student, *Early Infant Risk Factors of Eosinophilic Colitis*, 2019, University of Pavia, Italy

Eda Erbil, 1st-year molecular biology and genetics student, *Understanding the pathophysiology of arterial innervation in congenital diaphragmatic hernia rat model*, 2019, Koç University, Istanbul, Türkiye

Elif Demirtaş, 4th-year medical student, *Global Ped Surg Research Collaboration: Management and Outcomes of Congenital Anomalies in Low, Middle and High-Income Countries: A Multi-center, International, Prospective Cohort Study*, 2019, Koç University, Istanbul, Türkiye

Elif Gökçen Bozkurt, 3rd-year medical student, *Relation of RDW to the pulmonary hypertension*, 2019, Koç University, Istanbul, Türkiye

Erkan Yanıkoğlu, 4th-year medical student, *Standardization of Classification of Outcomes of Hypospadias by Image Recognition*, 2019, Cerrahpasa Medical Faculty, Istanbul Cerrahpasa University

Feyza Çiftçi, 4th-year medical student, *Psychological analysis of pediatric surgery patients*, 2019, Koç University, Istanbul, Türkiye

Hilal Metin, 3rd-year molecular biology and genetics student, *Understanding the pathophysiology of arterial innervation in congenital diaphragmatic hernia rat model*, 2019-2020, Bahçeşehir University, Istanbul, Türkiye

İlke Gül, 3rd-year business administration student, *Estimating cost of prenatal management of congenital diaphragmatic hernia on healthcare system*, 2019, Koç University, Istanbul, Türkiye

Miray Çiftçi, 4th-year biology student, *Understanding the pathophysiology of arterial innervation in congenital diaphragmatic hernia rat model*, 2019, Koç University, Istanbul, Türkiye

Mustafa Ekrem Erakin, 4th-year computer engineering student, *Mapping of lung vasculature in human*, 2019-2020, Medipol University, Istanbul, Türkiye

Nazlı Yılmaz, 1st-year nursing student, *Clinical research on pediatric surgery*, 2019, Koç University, Istanbul, Türkiye

Zeynep Bilgili, 2nd-year medical student, *Meta-Analysis on Gastroschisis*, Bezmialem Medical Faculty, 2019-2020, Bezmialem University

Graduate

Nilhan Torlak, Ph.D. candidate, *Placental Development in CDH*, January 2019-2025, Cellular and Molecular Medicine, Graduate School of Health Sciences, Koç University, Istanbul, Türkiye

Kaan Kemal Polat, Ph.D. candidate, *Development of NLM Model in Pediatric Surgery*, January 2023-ongoing, Mathematical Engineering, Yıldız Technical University, Istanbul, Türkiye

Serkan Gesoğlu, Masters candidate, *Predicting Intensive Care Needs of Newborns Prenatal by Machine Learning*, January 2020-2022, Mathematical Engineering, Yıldız Technical University, Istanbul, Türkiye

Hülya Acar, Masters candidate, *Detection of Inflammatory Process in Hypospadias Cases with Data Mining Methods*, January 2020-2022, Mathematical Engineering, Yıldız Technical University, Istanbul, Türkiye

Gamze Altunsaçan, Masters candidate, *Extraction of Features from Patient Data in Determining the Diagnosis of Pediatric Patients*, January 2022-2024, Mathematical Engineering, Yıldız Technical University, Istanbul, Türkiye

Alihan Yılmaz, Masters candidate, *Prediction of Major Inguinal Canal Pathologies Using Machine Learning Algorithms*, January 2022-2024, Mathematics, Yıldız Technical University, Istanbul, Türkiye

Enes Demir, Masters candidate, *Deep Learning-Based Multi-Structural Segmentation of Fetal MR Images*, January 2023-2025, Mathematical Engineering, Yıldız Technical University, Istanbul, Türkiye

Lectures

Tekirdağ Namık Kemal University School of Medicine (2020 – 2023)

Emergency & Acute Abdomen – Ileus, Acute Abdomen, Appendicitis

Neonatal GI Malformations – Gastrointestinal System Malformations in Newborns; Diaphragmatic Hernia; Pyloric Stenosis; Biliary Atresia

GI Hemorrhage – Upper GIS Bleeding; Lower GIS Bleeding

Pediatric Urology / Inguinal Region – Undescended Testis; Testicular Torsion; Inguinal Canal Pathologies

Pediatric Oncology – Solid Tumors of Childhood

Koç University School of Medicine (2018 – 2020)

Problem-Solving: Approach to Abdominal Pain

Congenital Diaphragmatic Hernia & Malrotation

Congenital Lung Malformations

Congenital Thoracic Pathologies

Case Discussion: GI Bleeding—Role of the Surgeon

Panel Discussion: Approach to Child Abuse

Koç University Graduate School of Health Sciences (2018 – 2020)

CAMM 550: Special Topics in Development of the Respiratory System & Congenital Thoracic Diseases

Mentoring

Emre Erdoğan, 2nd-year medical student, October 2017-2018, Turkish Educational Foundation, Istanbul, Türkiye

Gizem Güley, 5th-year medical student, October 2017-2018, Turkish Educational Foundation, Istanbul, Türkiye

Ulaş Tezerdi, 3rd-year medical student, October 2017-2018, Turkish Educational Foundation, Istanbul, Türkiye

Burak Şahin, 5th-year medical student, January 2018-2019, Turkish Educational Foundation, Istanbul, Türkiye

Awards

The 2nd Best Oral Presentation. Reversible Fetal Tracheal Occlusion in Mice: A Novel Minimal Invasive Technique. 64th National Pediatric Congress, 2020, Istanbul, Türkiye

The 2nd Best Oral Presentation. Management and outcomes of gastrointestinal congenital anomalies in low-, middle-, and high-income countries: a multi-centre, international, prospective cohort study. 42nd Pediatric Days, 2020, Istanbul, Türkiye

The 3rd Best Oral Presentation. Characterization of lung vasculature in the rat fetus with congenital diaphragmatic hernia. 42nd Pediatric Days, 2020, Istanbul, Türkiye

Prof Dr. Akgün Hiçsönmez Research Award. To compare efficiency of esophageal manometry, vector volume analyses and esophagus pH monitoring in patients with gastroesophageal reflux, 2014, Trabzon, Türkiye

Marmara University School of Medicine Student Congress (MaSCo) Encouragement Award, May 17th, 2002, Istanbul, Türkiye

CITI GCP & Animal Surgery certification (2016, 2023, 2025)

3rd Pediatric Urolithiasis Course, February 7-8th, 2014, Istanbul, Türkiye

1st Stem Cell Course, TUBA, June 25th, 2010, Ankara, Türkiye

Experimental Animals, Istanbul University HADYEK, May 24th - June 4th, 2010, Istanbul, Türkiye

Basic Surgery – Concepts, Attitudes and Skills, Istanbul University, 2009, Istanbul, Türkiye

Full course list

Exams

National Board Exam, Turkish Association of Pediatric Surgery, 2014

IELTS, 7.5, November 16th, 2019

Subscribed Associations

Association for the Support of Contemporary Living

European Pediatric Surgeons' Association

European Society of Pediatric Endoscopic Surgeons

European Respiratory Society

Istanbul Medical Chamber

Kabatas High School Association

Turkish Association of Pediatric Surgery

Turkish Medical Association

Turkish Pediatric Association

Turkish Respiratory Society

Turkish Thoracic Society

TURMEPA

World Federation of Associations of Pediatric Surgeons

Young Pediatricians Association

Skills

Surgical Models

Microsurgery

Minimal Invasive Surgery

Animal models for congenital diseases

Small & Large Animal Surgeries

Imaging & Analysis

Python

R

REDCap

SPSS for Windows

SQL

Molecular/Cellular Biology

Western Blotting

qPCR

Immunohistochemistry