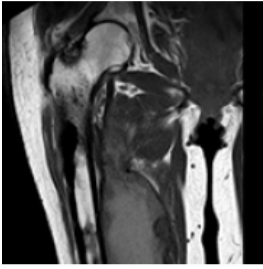


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02 Oct 2019 : Case report ●

[Chronic Expanding Hematoma in the Thigh: A Late Complication 32 Years After Treatment of Synovial Sarcoma: A Case Report](#)

Akio Sakamoto, Takeshi Okamoto, Tadao Tsuboyama, Shuichi Matsuda

DOI: 10.12659/AJCR.917855

Am J Case Rep 2019; 20:1449-1453

👁 493 📄 10



01 Oct 2019 : Case report 🇺🇸

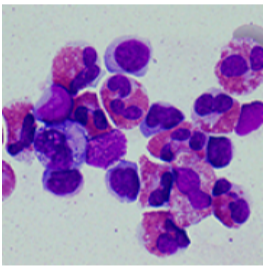
[Spontaneous Bacterial Peritonitis in Cardiac Ascites: A Rare but Deadly Occurrence](#)

Andrew Canakis, Justin Canakis, Minisha Lohani, Thomas Ostrander

DOI: 10.12659/AJCR.915944

Am J Case Rep 2019; 20:1446-1448

👁 1380 📄 9



30 Sep 2019 : Case report ●

[Eosinophilic Pneumonia Putatively Induced by Vancomycin: A Case Report](#)

Tomomi Isono, Hirochiyo Sawaguchi, Hidenori Kusumoto, Hiroyuki Shiono

DOI: 10.12659/AJCR.917647

Am J Case Rep 2019; 20:1440-1445

👁 466 📄 10



29 Sep 2019 : Case report 🇮🇮

[A 10-Year Old Girl with Resistant Hypertension without Significant Indication of an Underlying Renal Cell Carcinoma, Misdiagnosed as Malaria](#)

Olarinde Jeffrey Ogunmola, Clifford Onyema, Tajudeen Ishola Babatunde Bakare, Eunice Oluremi Olabinri, Olukemi Tolulope Bamigboye-Taiwo, Adeline Ohwofosa Adaje, Olubunmi Adeola Lawal

DOI: 10.12659/AJCR.916588

Am J Case Rep 2019; 20:1434-1439

👁 475 📄 5



28 Sep 2019 : Case report 🇺🇸

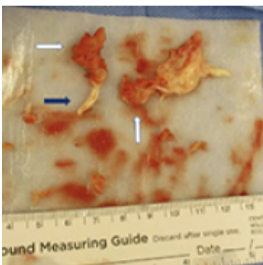
[A Case of Retained Catheter Guidewire Discovered Two Years After Central Venous Catheterization](#)

Nidal Arnous, Souvonik Adhya, Biwar Marof

DOI: 10.12659/AJCR.915941

Am J Case Rep 2019; 20:1427-1433

👁 531 📄 12



27 Sep 2019 : Case report 🇺🇸

[A Large Mitral Valve Vegetation Not Visualized on Transthoracic Echocardiography: A Case Report](#)

Nabil Braiteh, Kareem Ebeid, Alon Yarkoni, Daniel L. Beckles, Christine Fenlon

DOI: 10.12659/AJCR.918592

Am J Case Rep 2019; 20:1422-1426

👁 521 📄 5



26 Sep 2019 : Case report 🇸🇦

[Pyridostigmine Suicidal Attempt in a Myasthenia Gravis Patient](#)

Mohammed Aref T. Malabaey, Ahad A. Al-Saud, Yasser A. Alaska, Afnan Almas, Almas Malik

DOI: 10.12659/AJCR.917308

Am J Case Rep 2019; 20:1418-1421

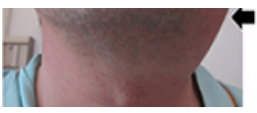
👁 471 📄 9



25 Sep 2019 : Case report ●

[Proliferative Fasciitis/Myositis Involving the Facial Muscles Including the Masseter Muscle: A Rare Cause of Trismus](#)

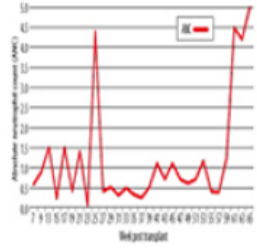
Tomoyo M. Nishi, Shun Yamashita, Yuka N. Hirakawa, Naoko F. Katsuki, Masaki Taqo, Shu-ichi Yamashita



Tomye M. Horn, Brian Ramoena, Tara N. Mahanta, Nabeel A. Khatami, Madani Fago, Shafer Ramoena

DOI: 10.12659/AJCR.917193
Am J Case Rep 2019; 20:1411-1417

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24 Sep 2019 : Case report

Calcineurin Inhibitors and Neutropenia: Is Cyclosporine Superior to Tacrolimus?

Tanu Duggal, Meghan Dempster, Rohini Prashar

DOI: 10.12659/AJCR.917282
Am J Case Rep 2019; 20:1407-1410

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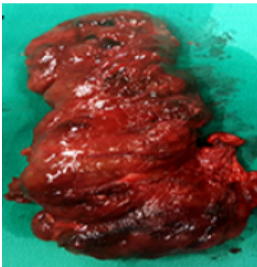
23 Sep 2019 : Case report

A Case of Cutaneous Larva Migrans in a Child from Vinces, Ecuador

Roberto D. Coello, Betty J. Pazmiño, Enrique O. Reyes, Enrique X. Rodríguez, Edgar I. Rodas, Karen A. Rodas, Alfredo X. Dávila, Jennifer P. Rodas, Pedro P. Cedeño

DOI: 10.12659/AJCR.915154
Am J Case Rep 2019; 20:1402-1406

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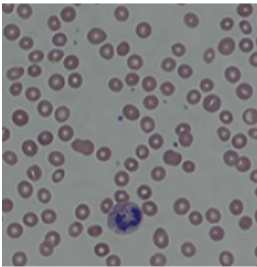
22 Sep 2019 : Case report

A Rare Coexistence of Medullary Thyroid Cancer with Graves Disease: A Case Report and Systematic Review of the Literature

Konstantinos Sapalidis, Anastasios Papanastasiou, Nikolaos Michalopoulos, Stylianos Mantalovas, Dimitrios Giannakidis, Georgios D. Koimtzis, Maria Florou, Christos Poullos, Niki Mantha, Isaak I. Kesisoglou

DOI: 10.12659/AJCR.917642
Am J Case Rep 2019; 20:1398-1401

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21 Sep 2019 : Case report

A Case of Rituximab-Induced Acute Thrombocytopenia in a Patient with Splenic Marginal Zone Lymphoma and Chronic Hepatitis C Virus Infection

Aref Qureini, Samia Asif, Stephanie Harry, Sheshadri Madhusudhana

DOI: 10.12659/AJCR.917644
Am J Case Rep 2019; 20:1394-1397

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20 Sep 2019 : Case report

Diffuse Exfoliative Rash with Sepsis and Eosinophilia: A Case of Erythroderma?

Jake Cho, Selsabeel A. Elyaman, Stephen A. Avera, Kenneth Iyamu

DOI: 10.12659/AJCR.917427
Am J Case Rep 2019; 20:1387-1393

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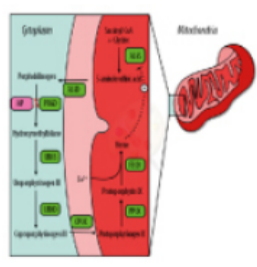
19 Sep 2019 : Case report

Neonatal Pericardial Effusion and Tamponade After Umbilical Venous Catheter Insertion and the Use of Saline Contrast Echo as a Diagnostic Tool

Mostafa Elbatreek, Nabil Bassuoni Shehata, Amani Abu-Shaheen, Abdurahman Almatary

DOI: 10.12659/AJCR.917723
Am J Case Rep 2019; 20:1382-1386

824 45



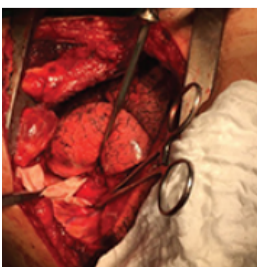
18 Sep 2019 : Case report

Axonal Polyneuropathy in a Man Treated for Pulmonary Cocci: A Case of Acute Intermittent Porphyrria

Kevin J. Guzman, Laxmi A. Suthar

DOI: 10.12659/AJCR.917134
Am J Case Rep 2019; 20:1378-1381

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17 Sep 2019 : Case report

Adenoid Cystic Carcinoma of the Trachea: A Case Report

Eveline Montessi Nicolini, Jorge Montessi, João Paulo Vieira, Guilherme de Abreu Rodrigues, Víctor de Oliveira Costa, Fabrício Machado Teixeira, Mariana de Oliveira Kassis

DOI: 10.12659/AJCR.917136
Am J Case Rep 2019; 20:1373-1377

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16 Sep 2019 : Case report 
Ecthyma Gangrenosum of Scrotum in a Patient with Neutropenic Fever: A Case Report

Jose A. Rodriguez, Paula A. Eckardt, Juan C. Lemos-Ramirez, Jianli Niu

DOI: 10.12659/AJCR.917443
 Am J Case Rep 2019; 20:1369-1372

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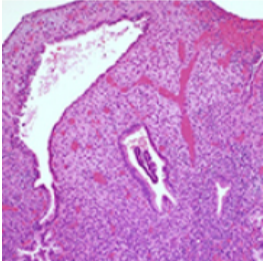


15 Sep 2019 : Case report 
Sugar and the Mosaic of Autoimmunity.

Oswald Moling, Latha Gandini

DOI: 10.12659/AJCR.915703
 Am J Case Rep 2019; 20:1364-1368

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14 Sep 2019 : Case report 
Endometriosis of the Urinary Bladder Causing a Right Hydronephrosis: A Case Report

Tuqa Adil Alsinan, Lana Alaa AlDahleh, Hajar Adel A. Alreefi, Skenah A. Albiabi, Yara O. Alsouss, Fatimah A. Alshayeb, Zahra H. Alshurafa, Alaa A. Moukhtar Hammad, Waleed M. Altaweel

DOI: 10.12659/AJCR.917445
 Am J Case Rep 2019; 20:1360-1363

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13 Sep 2019 : Case report 
Spinal Epidural Hematoma Following Epidural Catheter Removal in a Patient with Postoperative Urgent Coronary Intervention and Intra-Aortic Balloon Pumping (IABP): A Case Report

Ryosuke Mimata, Midoriko Higashi, Madoka Yasui, Takanao Hirai, Ken Yamaura

DOI: 10.12659/AJCR.917716
 Am J Case Rep 2019; 20:1356-1359

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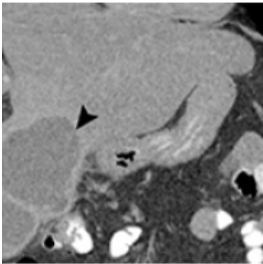


12 Sep 2019 : Case report 
Secondary Corneal Myxoma After DMEK (Descemet Membrane Endothelial Keratoplasty).

Dimitri Chaussard, Eric Frouin, Julie Francois, Maxime Sot, Elena-Adinisia Paraschiv, Jean-Marc Perone

DOI: 10.12659/AJCR.917641
 Am J Case Rep 2019; 20:1350-1355

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11 Sep 2019 : Case report 
Serratia Liver Abscess Infection and Cardiomyopathy in a Patient with Diabetes Mellitus: A Case Report and Review of the Literature

Anna Sarah Erem, Anna Krapivina, Timothy S. Braverman, Shyam S. Allamaneni

DOI: 10.12659/AJCR.918152
 Am J Case Rep 2019; 20:1343-1349

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10 Sep 2019 : Case report 
Medical Cannabis in Treatment of Resistant Familial Mediterranean Fever

George Habib, Uriel Levinger

DOI: 10.12659/AJCR.917180
 Am J Case Rep 2019; 20:1340-1342

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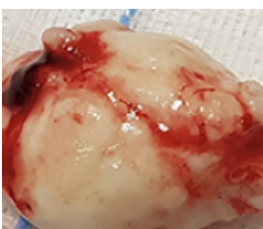



09 Sep 2019 : Case report 
Modified Radical Mastectomy for Male Breast Cancer

Mahmoud Musa Al Awayshih, Mohammad Nabih Nofal, Ali Jad Yousef

DOI: 10.12659/AJCR.916947
 Am J Case Rep 2019; 20:1336-1339

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08 Sep 2019 : Case report 
Chondroma of the Falx Cerebri with Central Cystic Degeneration and Hemorrhage: A Case Report

Alia H. Al Mohtaseb, Amer H. Hallak, Najla Aldaoud, Liqa A. Rousan, Husam Kammel Haddad, Bashar Abuzayed

DOI: 10.12659/AJCR.916794
 Am J Case Rep 2019; 20:1331-1335



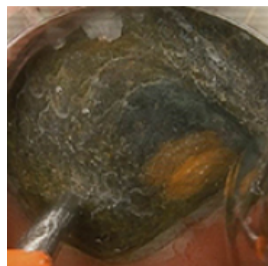
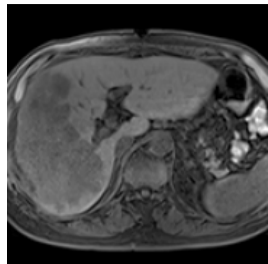
07 Sep 2019 : Case report

Humoral Hypercalcemia in a Patient with Cholangiocellular Carcinoma – Effective Therapy with Denosumab

Igor Alexander Harsch, Peter Christopher Konturek

DOI: 10.12659/AJCR.917275
Am J Case Rep 2019; 20:1325-1330

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06 Sep 2019 : Case report

Successful Treatment of Bouveret Syndrome by Electrohydraulic Lithotripsy and Double Balloon Endoscopy.

Ryoko Futai, Takao Iemoto, Yuta Inoue, Mika Miki, Tetsuyuki Abe, Shohei Abe, Ayaka Sasaki, Katsuhide Tanaka, Tomoo Yoshie, Takayuki Ose, Teruhisa Morikawa, Tsuyoshi Sanuki

DOI: 10.12659/AJCR.917964
Am J Case Rep 2019; 20:1320-1324

354 8



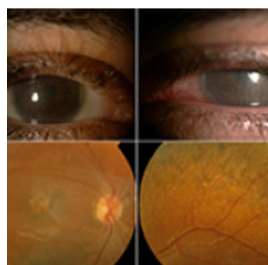
05 Sep 2019 : Case report

A Case of Non-Operative Management of Atraumatic Splenic Hemorrhage Due to Snakebite Venom-Induced Consumption Coagulopathy.

Hyeong Seok Lee, Won Young Sung

DOI: 10.12659/AJCR.918040
Am J Case Rep 2019; 20:1314-1319

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04 Sep 2019 : Case report

Asymmetrical Ocular Manifestations of Nephropathic Cystinosis; A Case Report

Hala A. Helmi, Jeylan El Mansoury, Selwa Al Hazzaa, Abdulaziz Al Zoba, Qais S. Dirar

DOI: 10.12659/AJCR.916737
Am J Case Rep 2019; 20:1308-1313

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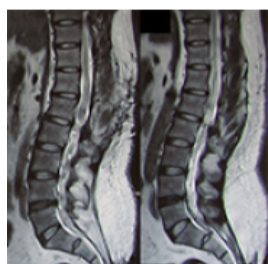
03 Sep 2019 : Case report

Incidental Duodenal Pancreatic Heterotopia During Laparoscopic Sleeve Gastrectomy: A Case Report and Literature Review

Fahad BaMehriz, Mohammed N. Alali, Hassan Arishi, Waed Yahya Yaseen, Mohammed Alswayyed, Abdullah Aldohayan

DOI: 10.12659/AJCR.916369
Am J Case Rep 2019; 20:1305-1307

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02 Sep 2019 : Case report

Motoric Recovery After Transplantation of Bone Marrow Derived Mesenchymal Stem Cells in Chronic Spinal Cord Injury: A Case Report

Phe Phedy, Yoshi P. Djaja, Luthfi Gatam, Yuyus Kusnadi, Rosiana P. Wirawan, Indriati M.S. Tobing, Nursanti Subakir, Arfan Mappalilu, Matheus A. Prawira, Rouna Yauwenas, Asrafi R. Gatam

DOI: 10.12659/AJCR.917624
Am J Case Rep 2019; 20:1299-1304

779 52



01 Sep 2019 : Case report

Post-Cholecystectomy Mirizzi Syndrome: A Case Report and Review of the Literature

Carolina Borz-Baba, Dylan A. Levy, Matthew E. Cohen

DOI: 10.12659/AJCR.916364
Am J Case Rep 2019; 20:1290-1298

678 18



31 Aug 2019 : Case report

A Case of Conjunctival Bee Sting Injury with Review of the Literature on Ocular Bee Stings

Axelle Semler-Collery, George Hayek, Sophie Ramadier, Jean-Marc Perone

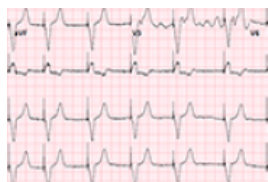
DOI: 10.12659/AJCR.917592
Am J Case Rep 2019; 20:1284-1289

585 9



30 Aug 2019 : Case report

Flecainide Toxicity Resulting in Pacemaker Latency and Intermittent Failure to Capture



John M. Suffredini, Joshua Rutland, Peter Akpunonu, Regan Baum, John Catanzaro, Claude S. Elayi

DOI: 10.12659/AJCR.916370

Am J Case Rep 2019; 20:1279-1283

527 11



29 Aug 2019 : Case report

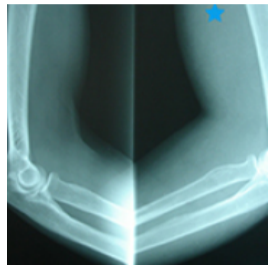
A Case of Transformation of Primary Cutaneous Follicle Center Lymphoma to Diffuse Large B-Cell Lymphoma Involving the Parotid Gland and Cervical Lymph Nodes

Maurice L. King, Toms Vengaloor Thomas, Ashley A. Albert, Sanjay Joseph, Lakshmi Ramachandran Nair, John T. Lam, William C. Woods, Mary Nittala, Srinivasan Vijayakumar

DOI: 10.12659/AJCR.917389

Am J Case Rep 2019; 20:1273-1278

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28 Aug 2019 : Case report

Upper-Limb Diabetic Myonecrosis: Atypical Presentation of a Rare Complication

Zahra Jalali, Sakineh Khatoun Sharif

DOI: 10.12659/AJCR.917030

Am J Case Rep 2019; 20:1268-1272

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27 Aug 2019 : Case report

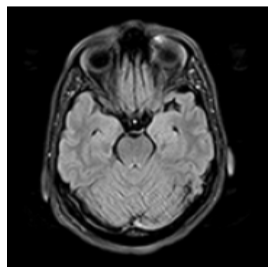
Plummer-Vinson Syndrome and Heart Failure: An Unusual Association in an African American Woman

Zachary Field, Michelle Russin, Jacqueline Kropf, Maxim Olivier, Li Ge, Yehuda Galili, Steve J. Carlan

DOI: 10.12659/AJCR.916823

Am J Case Rep 2019; 20:1264-1267

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26 Aug 2019 : Case report

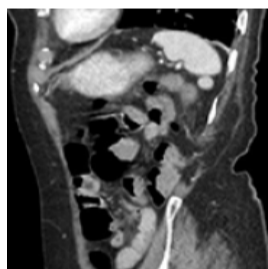
Syncope and Twitching at the Emergency Department

Adrian Scutelnic, Ulrike Prange, Simon Jung, Mirjam R. Heldner

DOI: 10.12659/AJCR.916945

Am J Case Rep 2019; 20:1259-1263

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25 Aug 2019 : Case report

Bilateral Fat Containing Lumbar Hernia: A Case Report and Literature Review

Mohammed N. AlAli, Sulaiman A. AlShammari, Walid Mohamed Omar, Mohammed Ayesh, Khalil Alawi

DOI: 10.12659/AJCR.917273

Am J Case Rep 2019; 20:1253-1258

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24 Aug 2019 : Case report

Falsely Undetectable Prostate-Specific Antigen (PSA) Due to Presence of an Inhibitory Serum Factor: A Case Report and Review of Pertinent Literature

Nicholas B. Loudas, Anthony A. Killeen, Vikram Palamalai, Christopher J. Weight, Arpit Rao, L. Chinsoo Cho

DOI: 10.12659/AJCR.917137

Am J Case Rep 2019; 20:1248-1252

676 8



23 Aug 2019 : Case report

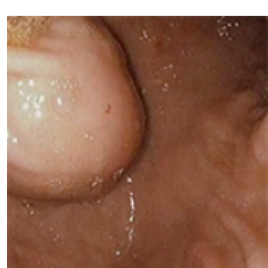
Pancytopenia and Septic Infection Caused by Concurrent Use of Allopurinol and Mercaptopurine: A Case Report Illustrating the Importance of Clinical Pharmacist Consultation

Alaa A. Alhubaishi

DOI: 10.12659/AJCR.914166

Am J Case Rep 2019; 20:1245-1247

670 11



22 Aug 2019 : Case report

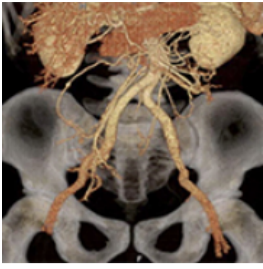
Incidental Finding of Gastric Schwannoma in a Renal Failure Patient – Managed by a Minimally Invasive Procedure: Report of a Rare Case


Mohamed A. Mujtaba, Alsadiq Al Hillan, Daniel Shenouda, Mohammad A. Hossain, Eugene Zurkovsky

DOI: 10.12659/AJCR.916487

Am J Case Rep 2019; 20:1241-1244

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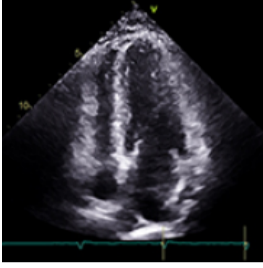



21 Aug 2019 : Case report 
[Arteriopathy of Unknown Etiology: Pathologic, Radiologic, and Cytogenetic Investigations](#)

Malik Ghannam, Dana Ghazaleh, Azizullah Beran, Benjamin Miller, Brent Berry

DOI: 10.12659/AJCR.917353
 Am J Case Rep 2019; 20:1235-1240

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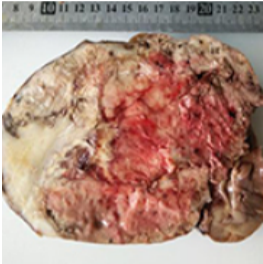


20 Aug 2019 : Case report 
[Pseudo-Wellens Syndrome in a Patient with Hypertension and Left Ventricular Hypertrophy.](#)

Olatunde Ola, Tahir Tak

DOI: 10.12659/AJCR.916623
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19 Aug 2019 : Case report 
[Sarcomatoid Chromophobe Renal Cell Carcinoma: A Case Report and Review of the Literature](#)

Lihui Bian, Jingling Duan, Xiaoyu Wang, Yang Yang, Xiaoling Zhang, Shengjun Xiao

DOI: 10.12659/AJCR.916651
 Am J Case Rep 2019; 20:1225-1230

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18 Aug 2019 : Case report 
[Chronic Cavitary Pulmonary Aspergillosis: A Case Report and Review of the Literature](#)

Kathryn G. Graham, Asad Nasir

DOI: 10.12659/AJCR.915893
 Am J Case Rep 2019; 20:1220-1224

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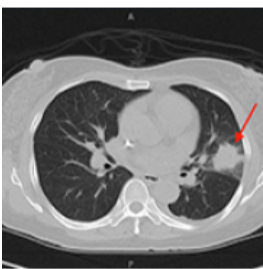


17 Aug 2019 : Case report 
[Infant Facial Paralysis Associated with Epstein-Barr Virus Infection](#)

Marta E. Álvarez-Argüelles, Susana Rojo-Alba, Mercedes Rodríguez Pérez, Fátima Abreu-Salinas, Ana de Lucio Delgado, Santiago Melón García

DOI: 10.12659/AJCR.917318
 Am J Case Rep 2019; 20:1216-1219

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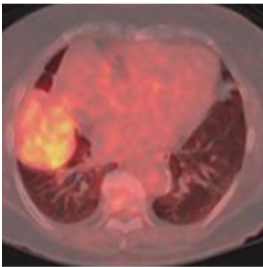


16 Aug 2019 : Case report 
[Disseminated Pulmonary with Isolated Muscular Mucormycosis in an Acute Myeloid Leukemia Patient: A Case Report and Literature Review](#)

Mustafa Fadhel, Swapnil V. Patel, Edward Liu, Lito Fune, Ethan J. Wasserman, Arif Asif

DOI: 10.12659/AJCR.916864
 Am J Case Rep 2019; 20:1210-1215

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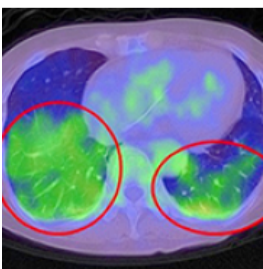



15 Aug 2019 : Case report 
[Tumor-to-Tumor Metastasis: Pulmonary Carcinoid Metastasizing to Solitary Fibrous Tumor](#)

Yutaka Shishido, Akihiro Aoyama, Shigeo Hara, Hiroshi Hamakawa, Yutaka Takahashi

DOI: 10.12659/AJCR.917139
 Am J Case Rep 2019; 20:1205-1209

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14 Aug 2019 : Case report 
[Intravascular Large B-Cell Lymphoma Presenting with Hypoxemia without any Abnormalities on Standard Imaging Studies](#)

Midori Tokushima, Naoko E. Katsuki, Masaki Tago, Shu-ichi Yamashita

DOI: 10.12659/AJCR.916877
 Am J Case Rep 2019; 20:1199-1204

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11 August 2022 : Case report 

[A 32-Year-Old Man with Persistent Olfactory Dysfunction Following COVID-19 Whose Recovery Was Evaluated by ...](#)

Am J Case Rep In Press; DOI: 10.12659/AJCR.936496 

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[A Case of Segmental Arterial Mediolytic of Multiple Visceral Arteries Following Anti-COVID-19 Vaccination: ...](#)

Am J Case Rep In Press; DOI: 10.12659/AJCR.937505 

29 July 2022 : Case report 

[Posterior Myocardial Infarction in a 45-Year-Old Javanese Woman with a 1-Month History of COVID-19-Related ...](#)

Am J Case Rep In Press; DOI: 10.12659/AJCR.937105 

08 July 2022 : Case report 

[Unusual Case of Painful Glossitis and Xerostomia Following Vaccination with Pfizer-BioNTech SARS-CoV-2 \(BNT...](#)

Am J Case Rep In Press; DOI: 10.12659/AJCR.937212 



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18 Aug 2022 : Case report 

[Splenic Hamartoma: A Case Report and Literature Review](#)

Am J Case Rep In Press; DOI: 10.12659/AJCR.937195 


17 Aug 2022 : Case report 

[Musical Ear Syndrome in a Patient with Unilateral Hearing Loss: A Case Report](#)

Am J Case Rep In Press; DOI: 10.12659/AJCR.936537 

16 Aug 2022 : Case report 

[Concurrent Bell's Palsy and Facial Pain Improving with Multimodal Chiropractic Therapy: A Case Report and L...](#)

Am J Case Rep In Press; DOI: 10.12659/AJCR.937511 


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A Case of Cutaneous Larva Migrans in a Child from Vinces, Ecuador

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Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
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Conflict of interest: None declared

Patient: Male, 8
Final Diagnosis: Cutaneous larva migrans
Symptoms: Acute pain in the foot • itching
Medication: —
Clinical Procedure: Treatment, ivermectin in a single dose of 200 µg/kg
Specialty: General and Internal Medicine





Objective: Rare co-existence of disease or pathology
Background: Cutaneous larva migrans (CLM) is caused by nematode parasites of the hookworm family of Ancylostomatidae. Ancylostomiasis is a zoonosis found in cats and dogs, and humans are an accidental host. This report presents a case of CLM in an 8-year-old boy, which was due to the zoonotic transmission of *Ancylostoma caninum* from domestic dogs in an urban area of Vinces, Ecuador, and demonstrates how awareness and early diagnosis contributed to the timely treatment of CLM.

Case Report: An 8-year-old boy from the urban area of Vinces city in the Los Ríos province of Ecuador presented with a serpiginous palpable lesion on the sole of the right foot, consistent with a diagnosis of cutaneous larva migrans (CLM). He was infected through contact with the soil where canine *Ancylostoma* larvae were found. Twenty samples of feces were analyzed from the soil, and *Ancylostoma* larvae were found in 100% of these samples. Also, 120 dog stool samples were examined, and 75 (62.5%) contained *Ancylostoma* larvae, which were identified using the modified Willis and Baermann method.

Conclusions: CLM is a zoonotic disease that can affect the population in endemic areas. In this case, CLM was identified in the sole of the foot of a child. The presence of *Ancylostoma* larvae were identified in the soil and in the feces of dogs, indicating that the community was exposed to a significant environmental risk from this zoonotic disease.

MeSH Keywords: *Ancylostoma* • Larva Migrans • Zoonoses

Full-text PDF: <https://www.amjcaserep.com/abstract/index/idArt/915154>

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Background

Worldwide, helminthic diseases transmitted through the soil affect more than two billion people [1,2]. Cutaneous larva migrans (CLM) is caused by nematode parasites of the hookworm family of Ancylostomatidae. Ancylostomiasis is a zoonosis found in cats and dogs, and humans are an accidental host. Common forms of Ancylostomiasis include *Ancylostoma caninum* and *Ancylostoma braziliense*. Humans become infected with hookworm when the skin comes into contact with infective larvae found in the feces of cats and dogs [3]. The larva penetrates the dermis and results in a local inflammatory reaction as it migrates through the skin and dermal tissues [3]. In humans, CLM is characterized by the appearance of a single linear, pruritic, and slow-growing lesion that advances at a rate of 1–2 cm per day [4,5].

Infective parasitic forms from dog or cat feces contaminate the environment as they enter the soil of public parks or wasteland, and this represents a serious animal health problem for uninfected dogs or cats, and a public health problem for humans [6]. Ancylostomiasis in domestic dogs is usually asymptomatic or causes intestinal disorders, anorexia, weight loss, and developmental disorders, but in severe cases, it can cause death [7].

The diagnosis of CLM in humans is made clinically and is based on the morphology of the skin lesions and the knowledge of the endemic nature of the condition in countries with a tropical climate. Laboratory tests are usually normal, but eosinophilia may be present. It may be uncommon to detect any pathology caused by the parasite in CLM, because it may be found in places that are not visible [5,8]. Intense pruritus can be associated with a strong inflammatory reaction to hyaluronidases and other enzymes secreted by the larvae as these enzymes facilitate penetration of the skin [9]. Dermatoscopy can be helpful in the clinical diagnosis of CLM but may fail to detect the larvae in some patients.

This report presents a case of CLM in an 8-year-old boy, which was due to the zoonotic transmission of *Ancylostoma caninum* from domestic dogs in an urban area of Vinces, Ecuador, and demonstrates how awareness and early diagnosis contributed to the timely treatment of CLM.

Case Report

Clinical presentation, diagnosis, and treatment

An 8-year-old boy who lived in the urban area of Vinces, Ecuador presented with a two-week history of a pruritic skin lesion on the sole of his right foot, which was initially treated



Figure 1. An 8-year-old boy with a serpiginous palpable lesion on the sole of the right foot, consistent with a diagnosis of cutaneous larva migrans (CLM).

as a presumed fungal infection. On physical examination, a 9 cm serpiginous, erythematous, and palpable plaque was present on the sole of the right foot that was associated with edema (Figure 1).

The morphology of the skin lesion and its location were consistent with a diagnosis of cutaneous larva migrans (CLM). On direct questioning about risk factors for hookworm infestation, the child's parents stated that he played football in a vacant lot and sometimes walked barefoot. Also, there were many domestic and feral dogs in the area.

The patient was treated with ivermectin administered as a single dose of 200 µg/kg. Seven days after treatment, the skin lesion on the sole of the right was dry, the child no longer complained of pruritus, and the symptoms had completely resolved during the following week [10,11].

Identification of the source of *Ancylostoma caninum*

Fecal samples from twenty dogs were collected from a vacant lot in La Granja, a central-southern urban area of Vinces, a city in the Los Ríos province of Ecuador. Samples were collected between 11 May and 15 June 2018 and were analyzed by the modified Baermann method. All the samples (100%) were positive for *Ancylostoma caninum* (Figure 2).



Figure 2. The presence of filariform larvae of *Ancylostoma caninum* in soil samples.

The prevalence of *Ancylostoma caninum* in fecal samples from dogs

Residents of the urban area of Vinces, Ecuador were informed about the risks from infestation by parasitic zoonoses and the importance to public health for determining the source of hookworm or *Ancylostoma caninum*. Informed consent of the animal owners was obtained before the dog feces were sampled. Residents were told how to obtain the sample and were supplied with a sterile container and instructions.

Fecal samples of domestic dogs were collected from households that agreed to participate in the study. In cases in which the dog owners could not collect the feces, the sample was taken with all the recommended biosecurity measures for this type of study.

The fecal samples that were obtained and those collected from the ground were transported on the day of collection in refrigerated boxes at 4–8°C to the Microbiology Laboratory of the Faculty of Veterinary Medicine and Zootechnics, University of Guayaquil.

Subsequently, between 29 June and 30 September 2018, 120 domestic and feral dogs in the sector adjacent to the urban lot were examined. Stool samples from the domestic dogs were analyzed using the Willis-Mollay simple flotation technique. In 75 stool samples from the domestic dogs, the presence of *Ancylostoma caninum* was identified (62.5%) using the method described by Willis (Figures 3, 4) [12,13].

Infection control for *Ancylostoma caninum*

Dogs that were infested with *Ancylostoma caninum* were dewormed using milbemycin oxime and praziquantel in a single dose of 0.5 mg/kg (0.23 mg/lb). After one month, a direct coproparasitic examination and flotation test were used to confirm the absence of the parasite [14]. The disease was



Figure 3. The identification of an *Ancylostoma caninum* egg using the Willis technique.



Figure 4. The identification of a filariform larva of *Ancylostoma caninum*.

also controlled by deworming the child, and health education campaigns were conducted, and the impact of untreated parasitosis was explained. Also, the land was cleaned, and the water was disinfected.

Discussion

This report of a case of cutaneous larva migrans (CLM) in an 8-year-old child is the fourth case reported in Ecuador. Two previously reported cases of CML were reported in a 35-year-old woman and a 28-year-old man, both from Riobamba, who had been infected at the Atacames beach in the Esmeraldas area. In 2017, at the El Aguador Health Center in the city of Machala, a case of CLM in the gluteal region was reported in an 11-year-old girl [28,29].

CLM is a zoonotic infection from the definitive host in the cat or dog. The feces of these animals contain eggs, which hatch in the ground where the larvae develop. Larvae can be transmitted within a week. Under favorable conditions of a humid environment and protected from light, the larvae can survive and maintain their ability to infect humans for months.

To control the spread of CLM, dogs and cats must be dewormed regularly, and people living in endemic areas of this disease should wear shoes to prevent contamination. However, these preventive measures may be hard to achieve, since this zoonosis is endemic in developing countries, which are generally associated with a lack of veterinary health systems and a large number of parasites can be found in the soil [15]. Although uncommon, cases have been reported from patients with no history of travel to endemic areas [16]. CLM is endemic in tropical and subtropical developing countries that have warm and humid climates and has a worldwide distribution but predominates in Mexico, and in north, central, and south America, Africa, and Southeast Asia. CLM has been reported most frequently in Brazil, India, and Sri Lanka, mainly in areas where there are dogs and cats without owners and in sandy and humid soils, such as beaches and recreational parks.

In this study, the prevalence of *Ancylostoma caninum* was determined in 100% of soil and dog feces samples. However, previous studies in Brazil on the prevalence of this parasite in soil samples in public parks and grounds was 46.8% for the parasitic form of the egg or larvae [17–19]. In Brazil, up to 85% of the soil samples were shown to be positive [17–19]. Also, cases of parasitic forms of *Ancylostoma* have been determined in public parks of Chile, with a prevalence of between 2–40% of *Ancylostoma* infecting larvae [17–19].

In rural areas with low economic income in South Africa, China, and Argentina and urban areas of Uruguay, Holland, and the Antilles, the prevalence of *Ancylostoma* in dogs ranges from 66–96% [3]. The prevalence of *Ancylostomiasis* in the feces

of domestic dogs has been reported to be 54% in Brazil [20], 52.22% in Mexico [21], 13.9–52.9% in Colombia [22,23], 16.9% in Peru [24], and 13% in Argentina [25]. In the Galapagos Islands and Ecuador, the prevalence of *Ancylostoma caninum* is 57.7% in domestic dogs [26], and in Limoncito in the province of Guayas, it was found to be 11.29% [13]. In 2018, Moreno-Cadena et al. found a prevalence between 21.7–47.5% in two locations on the Ecuadorian coast [23], and in Quito, a prevalence of 24.8% was determined in three dog shelters [27].

In domestic dogs studied in an urban sector of Ecuador, a prevalence of 62.5% indicated that the levels were approaching those recorded by Heukelbach et al. [3] in vulnerable areas of developing countries. Over time, if not addressed, these high levels could lead to a public health problem, and the town of Vinces has favorable conditions for the cycle of transmission of this parasitic disease [3]. Therefore, as this case report of CLM and the study of the local prevalence of *Ancylostoma caninum* in Ecuador have shown, this zoonosis was active in dogs, humans, and contaminated soil.

Conclusions

Cutaneous larva migrans (CLM) is a zoonotic disease that can affect the population in endemic areas. In this case, CLM was identified in the sole of the foot of a child. The presence of *Ancylostoma caninum* larvae were identified in the soil and in the feces of dogs, indicating that the community was exposed to a significant environmental risk from this zoonotic disease. Therefore, the population should be educated about sanitary measures and the responsibility of caring for pet dogs and cats, to prevent the transmission of this and other parasites.

Conflict of interest

None.

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