Indirect Healthcare-Associated Canine Sporotrichosis Caused by *Sporothrix brasiliensis*, Argentina, 2024

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We describe a *Sporothrix brasiliensis* infection in a dog in Puerto Iguazú, Argentina, in 2024, that clustered with 3 epidemiologically linked feline sporotrichosis cases at the same veterinary clinic. Early mycologic diagnosis, molecular surveillance, and rigorous infection-control practices are critical to prevent healthcare-associated *S. brasiliensis* exposures in veterinary settings.

Sporothrix brasiliensis causes zoonotic sporotrichosis, which is transmitted chiefly through bites, scratches, or exudates from infected domestic cats (*Felis catus*), the main reservoir host (*1*). Since emerging in Brazil in the late 1990s, *S. brasiliensis* has spread across South America and has become a One Health concern (*2*–*4*). The epidemiologic role of dogs (*Canis familiaris*) in the disease remains poorly defined; canine sporotrichosis cases have been reported mainly in Brazil (*5*–*7*) and Chile (*8*). In Argentina, outbreaks in cats and human cases have occurred in Puerto Iguazú in Misiones Province since 2023 (*9*,*10*), but the epidemiologic role of dogs in Argentina have not been characterized. In veterinary practice, bacterial pathogens are the most common cause of surgical site infections (*11*); fungal postoperative infections are rarely investigated and might be underrecognized (*12*) (Appendix, https://wwwnc.cdc.gov/EID/article/32/12/26-1410-App1.pdf). We describe a case of *S. brasiliensis* sporotrichosis in a dog that occurred within a cluster of feline sporotrichosis cases. The cases were linked to a single veterinary clinic in Argentina in 2024, and we evaluated evidence linking those cases to healthcare-associated exposures.

The Study

In August 2024, a 4-year-old, 4-kg male toy poodle in Puerto Iguazú (case A) was attacked by 2 free-roaming dogs and sustained deep lacerating wounds (Figure 1, panel A). The dog was hospitalized at a veterinary clinic for 1 week after debridement and surgical closure of the lesions within the interscapular area and left lateral thorax. The dog was discharged with amoxicillin/clavulanic acid and prednisolone. Approximately 1 month after discharge, both surgical sites dehisced with purulent discharge, accompanied by multiple ulcerative skin lesions (Figure 1, panels B, C) and respiratory signs. On October 24, during rehospitalization, lesion and nasal swab samples were collected. After Giemsa staining of the samples, cytologic examination showed yeast structures consistent with *Sporothrix* spp.; cultures confirmed *Sporothrix* spp. (Figure 1). Sequences of the internal transcribed

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spacer (ITS) region of rDNA and the calmodulin (*CAL*) gene identified *S. brasiliensis* (Table). Oral itraconazole treatment for 122 days resulted in complete clinical resolution (Appendix).

At the time of the dog's initial admission, a 6-month-old female cat (case B) had been hospitalized at the same clinic since mid-August for a persistent, antimicrobial drug–refractory, suppurative surgical-site lesion that occurred after an ovariohysterectomy (OHE) (performed at that clinic in late July 2024) (Figure 1, panel D). Respiratory signs were also observed. Sporotrichosis had not been suspected. On October 24, nasal and lesion swab samples were collected. Direct examination and culture were consistent with *Sporothrix* spp., and *S. brasiliensis* was subsequently confirmed by sequencing (Table; Appendix). The cat began itraconazole treatment but was lost to follow-up shortly thereafter.

In early September 2024, a 5-month-old female cat (case C) underwent OHE at the same clinic and subsequently developed a persistent, antimicrobial drug–refractory, suppurative surgical-site lesion (Figure 1, panel E). The cat was hospitalized on October 28. Cultured nasal and lesion swab samples collected on November 10 confirmed *Sporothrix* spp. Despite 41 days of oral itraconazole treatment, disease progressed, and the cat was euthanized. A fourth cat (case D) was an 11-month-old female with outdoor access that underwent OHE at the same clinic on June 10, 2024. Several weeks later, a suppurative surgical-site lesion developed (Figure 1, panel F), followed by additional cutaneous lesions and respiratory signs. Cultures of nasal and lesion swab samples collected on August 17 confirmed *Sporothrix* spp. Despite 53 days of oral itraconazole treatment, the cat was euthanized after clinical deterioration. *S. brasiliensis* was confirmed by ITS-rDNA and *CAL* sequencing in cases C and D (Table). No necropsies were performed (Appendix).

We initiated an epidemiologic investigation on October 27, 2024, after direct examination of samples collected from cases A and B on October 24 showed yeast structures consistent with *Sporothrix* spp. For each suspected case, we completed an epidemiologic questionnaire; after culture confirmation, contact investigations included potentially exposed animals

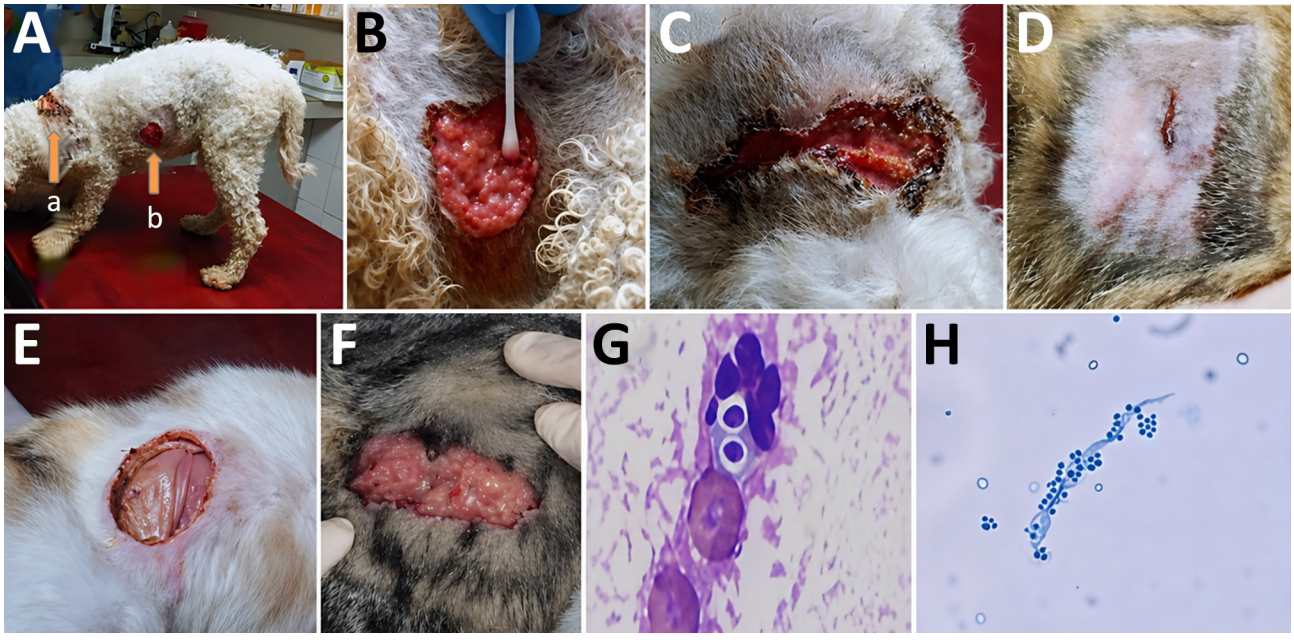


Figure 1. Clinical manifestations and mycologic findings in study of indirect healthcare-associated canine sporotrichosis caused by *Sporothrix brasiliensis*, Argentina, 2024. Clinical images of ulcerative skin lesions associated with traumatic wounds and surgical sites on 1 dog and 3 cats infected with *S. brasiliensis* and mycologic images consistent with *Sporothrix* spp. A) Initial traumatic lesions consistent with bite wounds in canine case A. Arrows indicate location of the wounds: a, interscapular area; b, left lateral thorax. B) Close-up view of the ulcerative lesion at the surgical site in the interscapular area 1 month after discharge from clinic, corresponding to arrow a in panel A. C) Close-up view of the ulcerative lesion at the surgical site on the left lateral thorax 1 month after discharge from clinic, corresponding to arrow b in panel A. D) Cat in case B with an ulcerative lesion at the ovariohysterectomy (OHE) site. E) Cat in case C with an ulcerative postsurgical lesion at the OHE site. F) Cat in case D with an ulcerative lesion associated with the OHE surgical site. G) Yeast-like structures compatible with *Sporothrix* spp. observed on cytologic examination of a lesion swab sample obtained from the dog in case A and stained with Giemsa. Original magnification ×1,000. H) Micromorphology of a *Sporothrix* spp. culture from the dog in case A, stained with lactophenol cotton blue. Original magnification ×400.

Table. Characteristics of 4 confirmed sporotrichosis cases in study of indirect healthcare-associated canine sporotrichosis caused by *Sporothrix brasiliensis* in Puerto Iguazú, Misiones, Argentina, 2024*

Case†	Species	Age/sex	Clinical manifestations	Samples	Outcome	Strain code‡	GenBank accession nos.‡
A	Dog	4 y/M	Multiple ulcerative cutaneous lesions, sneezing, and nasal discharge	CL, N	Clinical resolution	CLMi-098	PZ485661, PZ492985
B	Cat	6 mo/F	Ulcerative postsurgical lesion with purulent exudate and sneezing	CL, N	Follow-up unavailable	FSCMi-099	PV874337, PV877287
C	Cat	5 mo/F	Ulcerative, suppurative postsurgical lesion	CL, N	Euthanized	FSCMi-100	PV874362, PV877262
D	Cat	11 mo/F	Multiple ulcerative, suppurative lesions involving the head, dorsum, limbs, and surgical site, accompanied by respiratory distress	CL, N	Euthanized	FSCMi-080	PV874344, PV877280

**Sporothrix brasiliensis* was identified in all confirmed cases through molecular analysis of collected swab samples. CL, cutaneous lesion, N, nasal.
†Case A corresponds to data collected in our study, whereas cases B–D were previously reported (*9*,*10*). Clinical case histories are provided in the Appendix (https://wwwnc.cdc.gov/EID/article/32/12/26-1410-App1.pdf).
‡Strain codes and GenBank accession nos. are provided to support molecular identification. GenBank accession nos. are for the internal transcribed spacer region of rDNA and calmodulin gene.

and humans. We reviewed veterinary records and owner interviews, assessed household animal contacts, and obtained swab samples of the clinic environment. The dog (case A) had no household animal contacts. The cat in case B lived with a clinically healthy, culture-negative cat. The cat in case C lived with a dog that underwent neutering at the same clinic; surgical-site and dorsal lesions subsequently developed in the dog, but sampling was not authorized. The cat in case D had no reported animal contacts. The cat in case B was hospitalized before the dog, but hospitalization stays overlapped, and housing was in

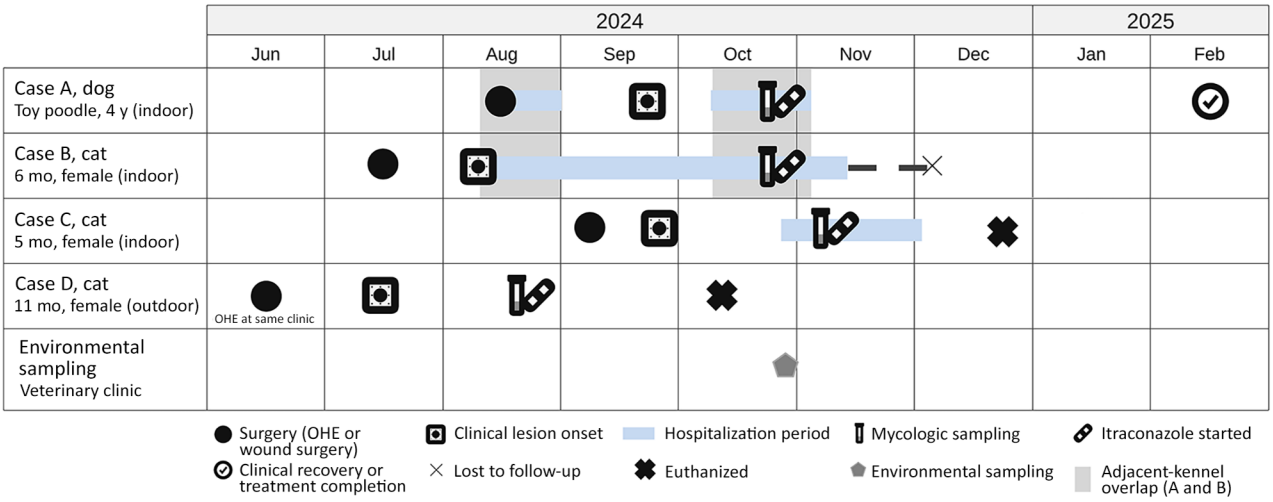


Figure 2. Timeline of clinical and epidemiologic events in study of indirect healthcare-associated canine sporotrichosis caused by *Sporothrix brasiliensis*, Argentina, 2024. One canine and 3 feline cases of *Sporothrix brasiliensis* infections were associated with the same veterinary clinic in Puerto Iguazú, Misiones Province during 2024–2025. Case A was in a dog that had a bite-wound injury, wound surgery, and initial hospitalization in August 2024 and was discharged ≈1 week later. Subsequent wound dehiscence and clinical lesions developed, the dog was hospitalized again in early October, mycologic sampling was performed on October 24, itraconazole treatment was initiated on October 27, and clinical recovery and treatment was completed on February 26, 2025. Case B was in a cat that underwent OHE in late July 2024 and was hospitalized in mid-August for a persistent surgical-site lesion. Mycologic sampling was performed on October 24, itraconazole treatment was initiated on October 27, but the cat was then lost to follow-up. Case C was in a cat that underwent OHE in early September 2024 and a surgical-site lesion developed, requiring hospitalization beginning on October 28. Mycologic sampling was performed on November 10, itraconazole treatment was initiated on November 15, and the cat was euthanized on December 26. Case D was in a cat that underwent OHE at the same veterinary clinic on June 10, 2024, and had lesion onset several weeks later. Mycologic sampling was performed on August 17, itraconazole treatment was initiated on August 20, and the cat was euthanized on October 12. We performed environmental sampling of the surgical table and instruments on October 28. Shaded bands indicate periods when the dog in case A and cat in case B were hospitalized at the same clinic concurrently in adjacent kennels. Approximate dates were reconstructed from available clinical records and owner interviews. OHE, ovariohysterectomy.

adjacent kennels; the cats in cases C and D underwent OHE at the same clinic before developing surgical-site lesions (Figure 2). During sampling and household visits, we asked veterinary personnel, owners, and household members whether they developed skin lesions after contact with affected animals, and we provided prevention and safe-handling guidance. No person reported having lesions.

Phylogenetic analysis of concatenated ITS-rDNA and *CAL* sequences placed all isolates within the *S. brasiliensis* clade (*13*) (Figure 3). ITS-rDNA sequences were identical among the clinical isolates and reference strain CBS120339^T. Across concatenated sequences, the strain from the dog showed 99.89% identity with the other clinical isolates, which differed from CBS120339T by 1 nucleotide. We deposited nucleotide sequences generated in this study in GenBank (Table).

On October 28, 2024, we collected 1 environmental swab sample from a surgical table and 2 samples from surgical instruments on an adjacent countertop (Appendix). All 3 samples yielded filamentous fungal growth phenotypically compatible with *Sporothrix* spp. Molecular identification of the environmental isolates was attempted but was unsuccessful; therefore, species-level identification could not be established.

The cluster of epidemiologically linked canine and feline sporotrichosis cases, all associated with a single veterinary clinic, is consistent with healthcare-associated exposure to *S. brasiliensis*. Together with *Sporothrix* spp. recovery from environmental swab samples, our findings support the plausibility of contaminated surfaces or fomites as a route of indirect transmission within the clinic. Direct inoculation through dog-bite wounds remains an alternative, not excluded, explanation for case A; however, dog-to-dog transmission of *S. brasiliensis* is rarely documented, and the attacking dogs were not evaluated. We could not establish the precise transmission route because molecular identification of the environmental isolates was unsuccessful and because we did not systematically evaluate infection-control practices, including hand hygiene, personal protective equipment use, cleaning, disinfection, and environmental controls, by using a standardized protocol.

Although bacterial pathogens remain the most common cause of surgical site infections in veterinary medicine (*11*), fungal infections are seldom investigated and are likely underrecognized (*12*). In regions with active *S. brasiliensis* transmission, sporotrichosis should be considered in the differential diagnosis of nonhealing postoperative or antimicrobial drug–refractory lesions in cats and dogs. *S. brasiliensis* can persist in organic material and contaminated environments (*14*), supporting possible fomite-mediated exposure. Identification of *S. brasiliensis* in all 4 clinical isolates is consistent with its documented circulation in the Argentine Triple Frontier region (*9*,*10*,*15*). However, ITS-rDNA and *CAL* sequences

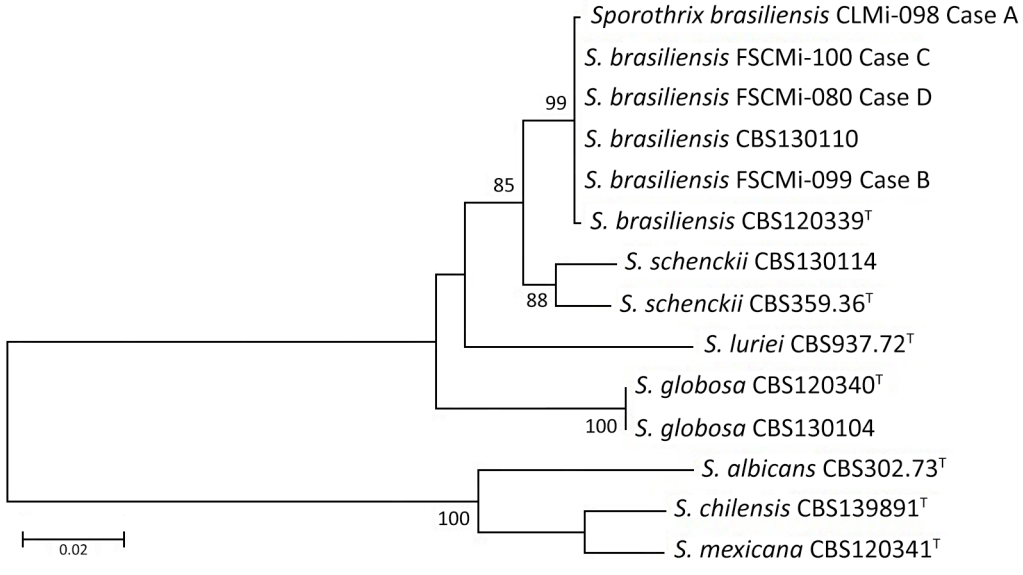


Figure 3. Maximum-likelihood phylogenetic tree in study of indirect healthcare-associated canine sporotrichosis caused by *Sporothrix brasiliensis*, Argentina, 2024. We created the tree using the concatenated internal transcribed spacer region of rDNA and calmodulin gene sequences from clinical isolates collected in Misiones Province, Argentina, in 2024 and *Sporothrix* spp. reference strains. We used the Tamura 3-parameter substitution model with gamma distribution in MEGA (*13*). Bootstrap values ≥75% (1,000 replicates) are shown above branches. Ex-type strains (cultures derived from type material) are marked with a superscript T. Tip labels identify the study isolates by case and host species (case A, dog; cases B–D, cats) and by strain code (Table). The 4 study isolates clustered within the *S. brasiliensis* clade alongside reference strains CBS130110 and CBS120339^T. Scale bar represents nucleotide substitutions per site.

lacked sufficient resolution to establish transmission relationships or a common source; higher-resolution methods, such as microsatellite analysis or whole-genome sequencing, would be required to reconstruct transmission chains.

Conclusions

We report canine sporotrichosis caused by *S. brasiliensis* in a region of Argentina with ongoing sporotrichosis outbreaks in cats (*9*,*10*). Although canine disease is reported less often than feline infections, cases are increasingly recognized in sporotrichosis-endemic regions (*5*–*8*), and the clinical manifestations (ulcerative lesions with respiratory involvement) are consistent with previous reports. In leishmaniasis-endemic areas, such as Puerto Iguazú, sporotrichosis should also be considered in the differential diagnosis of compatible dermatologic lesions. Early mycological diagnosis, molecular surveillance, and rigorous infection-control practices are critical in veterinary settings in regions where *S. brasiliensis* circulates.

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The study protocol was reviewed and approved by the Institutional Ethics Committee and the Institutional Commission for the Care and Use of Experimental Animals of the Faculty of Agricultural and Veterinary Sciences, Universidad del Salvador, Pilar, Provincia de Buenos Aires, Argentina (approval no. ICCUEA06-2021). Permits for the collection of natural resources or genetic material were granted by the Instituto Misionero de Biodiversidad, Puerto Iguazú, Misiones, Argentina, and the Ministerio de Ecología y Recursos Naturales, Misiones, Argentina (file no. 9950-70-2023-1). Owners provided written informed consent. Strains were deposited in the culture collection of the Mycology Department, Instituto Nacional de Enfermedades Infecciosas, Administración Nacional de Laboratorios e Institutos de Salud "Dr. Carlos G. Malbrán", Buenos Aires, Argentina.

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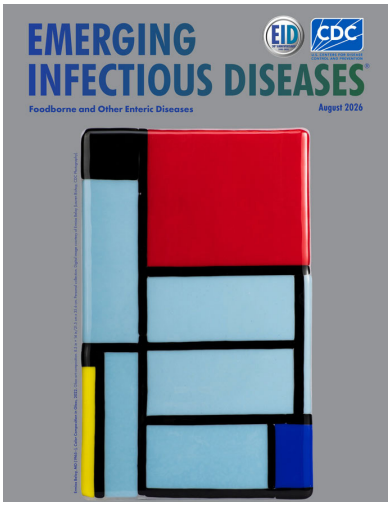
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