

# Ocular Delusional Parasitosis in Schizophreniform Disorder with Concurrent Cocaine Use: A Case Report and Literature Review

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## Introduction

Delusional parasitosis (DP) is a rare and potentially debilitating psychiatric condition characterized by false beliefs of bodily infestation with parasitic organisms such as worms or insects. Also known as delusional infestation or Ekbom syndrome, DP typically involves sensations of skin crawling or itching. Affected individuals may attempt to remove imagined parasites, leading to self-inflicted skin excoriations. Rarer still, DP with ocular involvement has been described in only 15 published cases. Ocular DP can be particularly devastating, as attempts to eliminate parasites can lead to permanent vision loss. Etiologies of DP include primary delusional disorder and delusions secondary to psychiatric illness (such as schizophrenia), medical illness, or substance/medication use (particularly stimulants and dopamine agonists)<sup>18</sup>.

## Case Summary

A 43-year-old Caucasian female with no relevant comorbidities self-presented to the emergency department for “parasites” in her right eye and a several month history of dermal and gastrointestinal infestation with “roundworms.” A review of the chart revealed a four-month history of messages to her family physician with images of feces and requests for treatment of parasitic infection. The patient had self-medicated her perceived infection with oral ivermectin veterinarian paste and an over-the-counter dietary supplement advertised for gut-cleansing, which she had applied directly to her right eye.

Ophthalmic exam was significant for right periorbital edema, 3+ conjunctival injection, a 6x5 mm central corneal abrasion, and ocular pH of 8-10. Visual acuity, extraocular movements, and intraocular pressure remained intact. Her right eye was flushed via a Morgan Lens with 21 liters of fluid. Erythromycin ointment, moxifloxacin eyedrops, and cyclopentolate eyedrops were started for ocular chemosis.

Stool was negative for ova and parasites and urine drug screen positive for cocaine. Psychiatry then evaluated the patient and involuntarily committed her to the behavioral health unit (BHU) for treatment of delusional parasitosis and presumed schizophreniform disorder. Delusions persisted despite several day sobriety from stimulants and the patient was initiated on risperidone, titrated to an effective dose of 3 mg nightly with denial of parasitosis. The patient was then transitioned to long-acting injectable paliperidone fumarate 117 mg. At one month follow up, the patient endorsed continued resolution of parasites, which she attributed to her self-medication with ivermectin prior to BHU admission.

## Exhibit



## Differential Diagnosis

- Delusional disorder, somatic subtype
- Substance induced psychosis
- Schizophreniform disorder
- Medical illness

### Workup:

- UDS cocaine positive
- Pertinent negatives: stool ova/parasites, CBC, ESR, B9, B12, TSH/T4, liver function, lipid panel, ethanol, RPR
- CT head unremarkable

## The Dopamine Hypothesis

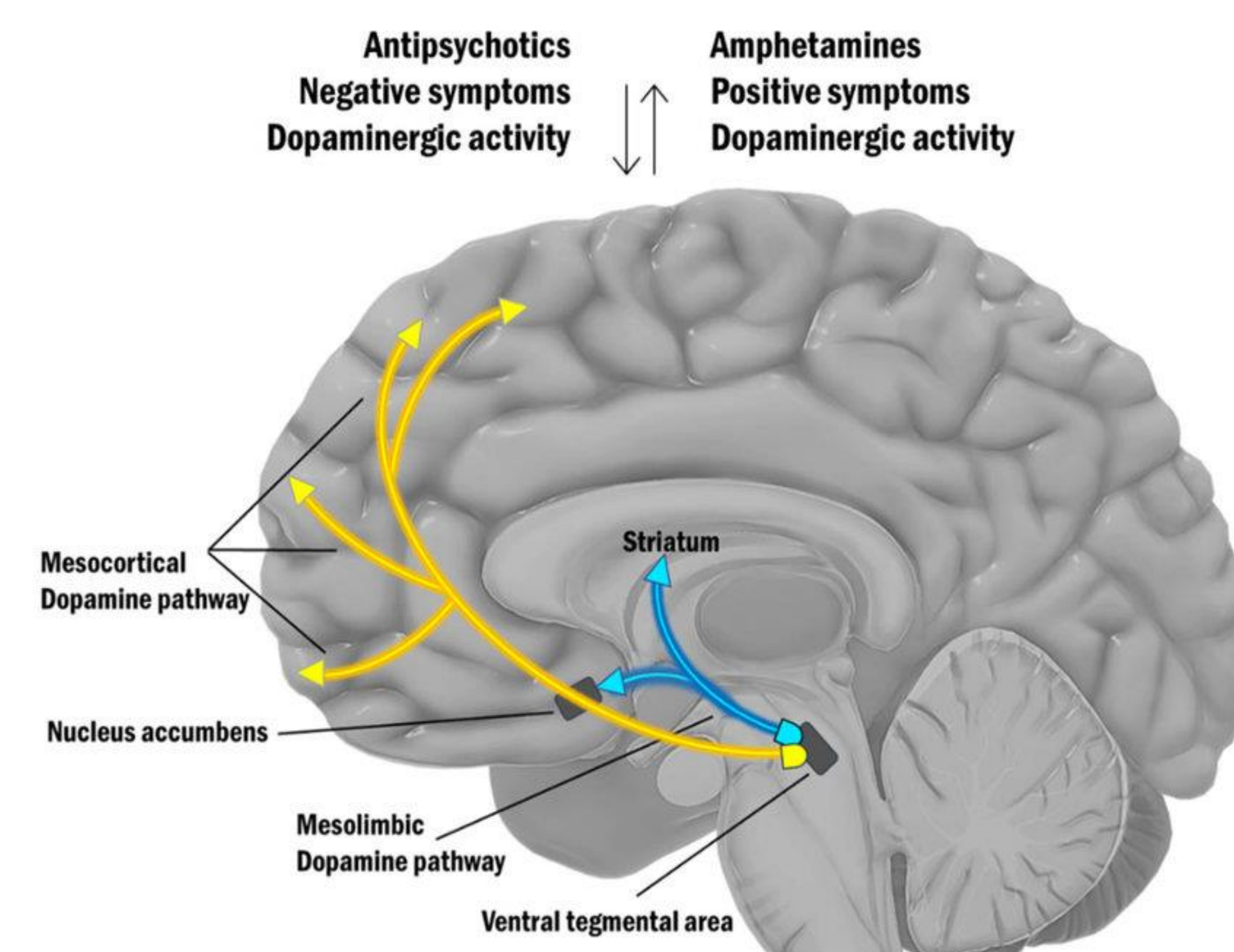


Figure 1. Dopamine Hypothesis in Schizophrenia<sup>17</sup>

## Literature Review

Our literature review identified 15 published cases of DP involving the eyes or eyelids. In most of these cases, patients presented with vision threatening, self-inflicted trauma. Trauma may take the form of rubbing or extracting parasites, leading to corneal ulcerations<sup>10</sup> and in one case enucleation<sup>9</sup>. Other patients apply to their eyes toxic substances such as camphor<sup>7</sup> or insecticides<sup>4</sup>. For most patients with ocular DP, atypical antipsychotics bring partial or complete remission of symptoms<sup>4,5,7,10,12,16</sup>. However, patients may resist psychiatric referral, and three were lost to follow up<sup>13,14,15</sup>. A therapeutic alliance with thorough laboratory workup and frequent follow ups can improve outcomes<sup>11</sup>. Outcomes may be further improved with holistic treatment including medication, psychotherapy, social support, and personal wellness<sup>2,11</sup>.

## Treatment Mainstays

Efficacy of Antipsychotics in Primary Delusional Parasitosis					
	# of patients	Complete remission, n (%)	Partial remission, n (%)	No response, n (%)	Non-adherence, n (%)
<b>FGAs</b> (pimozide, haloperidole, fluphenazine, chlorpromazine)	117	56 (47.9)	41 (35.0)	20 (17.1)	0 (0)
<b>SGAs</b> (risperidone, olanzapine, aripiprazole, quetiapine)	103	56 (54.4)	36 (35.0)	8 (7.8)	3 (2.9)

Figure 2. Antipsychotic Efficacy<sup>8</sup>

## Conclusion

Common causes of DP include psychostimulant use or psychiatric illness<sup>18</sup>, as suspected in the present case. Few cases document ocular manifestations of DP, which often presents with vision threatening self-mutilation. The present case demonstrates the challenges of diagnosing and managing this condition in a patient with schizophreniform disorder and concurrent cocaine use who required involuntarily commitment to the BHU. When presented with ocular DP, providers should develop therapeutic rapport with compassionate dialogue and a thorough workup, as patients may initially resist psychiatric referral<sup>13,14,15</sup>. Treatment mainstays include antipsychotic medications and psychotherapy<sup>2,3,11</sup>. Recent studies suggest improved outcomes with attention to social support and personal wellness<sup>2,11</sup>.

## References

1. American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.). <https://doi.org/10.1176/appi.books.9780890425787>
2. Coetzee, S., Mahajan, C., & França, K. (2023). The diagnostic workup, screening, and treatment approaches for patients with delusional infestation. *Dermatology and Therapy*, 13(12), 2993-3006. <https://doi.org/10.1007/s13555-023-01053-4>
3. Gold A, Roit Z, Llovera I. Pitfalls and Pearls in Delusional Parasitosis. *Clin Pract Cases Emerg Med*. 2019 Oct 14;3(4):387-389. doi: 10.5811/cpcem.2019.8.44619. PMID: 31763595; PMCID: PMC6861047.
4. Heinecke, E., & Carmody, J. (2015). Delusional parasitosis presenting with ocular formation. *Australian and New Zealand Journal of Psychiatry*, 49(2), 190-190. <https://doi.org/10.1177/0004867414555719>
5. HUANG, W., & CHANG, L. (2013). Aripiprazole in the treatment of delusional parasitosis with ocular and dermatologic presentations. *Journal of Clinical Psychopharmacology*, 33(2), 272-273. <https://doi.org/10.1097/JCP.0b013e3182856850>
6. Huber M, Kirchlir E, Karner M, Pycha R. Delusional parasitosis and the dopamine transporter: A new insight of etiology? *Med Hypotheses*. 2007;68(6):1351-8. doi: 10.1016/j.mehy.2006.07.061. Epub 2006 Nov 28. PMID: 17134847.
7. Lim, G. C., Chen, Y., Liu, L., Huang, S. C., Lin, K. & Hsiao, C. (2006). Camphor-Related Self-Inflicted Keratoconjunctivitis Complicating Delusions of Parasitosis. *Cornea*, 25 (10), 1254-1256. doi: 10.1097/01.icc.0000230325.67074.e4.
8. Lu, J. D., Gotesman, R. D., Varghese, S., Fleming, P., & Lynde, C. W. (2022). Treatments for primary delusional infestation: Systematic review. *JMIR Dermatology*, 5(1), e34323-e34323. <https://doi.org/10.2196/34323>
9. Ma, Jingyi, et al. "Morgellons disease leading to corneal perforation and enucleation." *Canadian Journal of Ophthalmology*, vol. 54, no. 6, 2019, pp. e285-e288. <https://doi.org/10.1016/j.cjop.2019.04.002>.
10. Meraj, A., Din, A. U., Larsen, L., & Liskow, B. I. (2011). Self inflicted corneal abrasions due to delusional parasitosis. *BMJ Case Reports*, 2011(jul28 1), bcr0420114106-bcr0420114106. <https://doi.org/10.1136/bcr.2011.4106>
11. Reich A, Kwiatkowska D, Pačan P. Delusions of Parasitosis: An Update. *Dermatol Ther (Heidelb)*. 2019 Dec;9(4):631-638. doi: 10.1007/s13555-019-00324-3. Epub 2019 Sep 13. PMID: 31520344; PMCID: PMC6828902.
12. Risi, E., Bagla, P., Allen, L., & Das, A. (2023). Charles bonnet syndrome leading to delusional and ocular delusional parasitosis. *Primary Care Companion for CNS Disorders*, 25(6) <https://doi.org/10.4088/PCC.23cr03545>
13. Sandhu, R. & Steele, E. (2016). Morgellons Disease Presenting As an Eyelid Lesion. *Ophthalmic Plastic and Reconstructive Surgery*, 32 (4), e85-e87. doi: 10.1097/IOP.0000000000000258.
14. Thakkar, Angeli; Ooi, Kenneth GJ; Assaad, Nagi; Coroneo, Minas. *Clinical Ophthalmology*; Auckland Vol. 9, (2015): 967-970. DOI:10.2147/OPHT.576420
15. Trager, M. J., Hwang, T. N., & McCulley, T. J. (2008). Delusions of parasitosis of the eyelids. *Ophthalmic Plastic and Reconstructive Surgery*, 24(4), 317-319. <https://doi.org/10.1097/IOP.0b013e31817e8ae3>
16. Whitfield, N.T., Krasniak, A.E., Nguyen, H.T. (2021). Concurrent Delusions of Ocular Parasitosis and Complex Visual Hallucinations. *Permanent Journal*, 25(1).
17. Figure 1. Retrieved from [https://www.researchgate.net/figure/The-dopamine-hypothesis-for-schizophrenia\\_fig1\\_354181726](https://www.researchgate.net/figure/The-dopamine-hypothesis-for-schizophrenia_fig1_354181726).
18. Fisher, A. H., & Stanciu, C. N. (2017). Amphetamine-induced delusional infestation. *American Journal of Psychiatry Residents' Journal*, 12(12), 12-13. <https://doi.org/10.1176/appi.ajr-j.2017.121204>

## Acknowledgements

We would like to express our appreciation for the patient who allowed us to present her case.