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LETTER TO THE EDITOR

Observations regarding the dynamics of confrontation in FOREST ENVIRONMENT AND URBAN ENVIRONMENT: A POSSIBILITY OF SHOOTING AT SHORT RANGE AND FROM BEHIND NO EVIDENCE OF EXECUTION

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Dear Editor

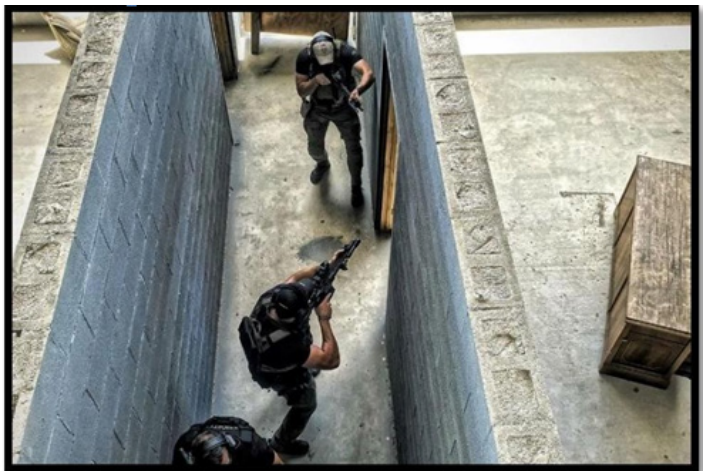
I am forwarding this letter with the aim of contributing to the technical and scientific discussion on the interpretation of ballistic findings in armed confrontations involving Brazilian public security forces. The topic isespecially relevant in light of operations carried out against drug traffickers — Classified by some analysts as narcoterrorists — and also against militias, all recognized as criminal groups that exert intense territorial control and military power in various regions of the country. The presence of these agents, widely publicized in official documents and Intelligencereportsconstituteawell-knownfact,requiringnospecificproof.

Armed confrontations involving police forces and criminal groups in peripheral urban areas and wooded regions have become increasingly frequent in Brazil. These clashes generally occur against drug traffickers, narcoterrorists – as they are termed in some literature andby the public – and militias, all actors recognized as being involved in violent dynamics that requirenoindividualverification,giventhewidespreadnotorietyofthephenomenon.These confrontations present peculiar characteristics: high mobility of the targets, uneven terrain, limited visibility, multiple threat vectors, and, above all, the predominance of rifle fire at varying distances, often less than a few meters.

Close-quartersgunfireeinanurbanconfrontationisahigh-risktacticalsituationknownas **Close** Quarters Battle (CQB). In these scenarios, proximity to the target is minimal, requiring specialized techniques and immediate decision-making by security forces.

To help the reader understandhow confrontationsoccurinurban combat, we have included a photographretrievedfromthe internet.¹

This shows the importance of special forces trainingandproximitytoconfrontation.



In public debate, shots in the back or shots fired at close range often generate immediate suspicionsofexecution.However,specializedliteratureonconfrontationdynamics,forensic ballistics, and human behavior under extreme stress demonstrates that such wound patterns are compatible.

withreal-lifeshootingsituations,especiallyintacticalprogressionoperationsinforestsor dense urban areas. Thus, it becomes relevant to clarify, based on technicaland scientific principles,how these interactionsare structured [1].

And why being shot in the back can occur within the normal operational parameters of a confrontation.

To help the reader understand that shots fired as from behind can occur in urbancombatconfrontations, we have provided a photographretrievedfrom the internet2 that shows a possible scenario.

We can also mention a situation that can occur both in confrontations in the woods and within communities, when teams move to surround the criminals and, while one part of the group is in direct confrontation, another part moves to close the encirclement, approaching from behind.

In this context, there is no possibility of attempting to surrender, given that the confrontation is ongoing, which could result in a redirection of gunfire, compromising the safety of the arriving team.

In the image provided alongside, we seek to demonstrate the reality of what occurs when the siege closes in and shots are fired, potentially hitting the backs of those involved, not necessarily in an execution situation, but merely... aconsequenceofashooting [2].

In these eventualities, in response to unjust aggression, as a result of shots fired by the second team, it may happen that someone is hit in the back, which, under no circumstances, can mean that any type of execution has occurred.

The interpretation of traces left on corpses and in the environment of the confrontation requires detailed contextual analysis, especially when there are signs of close-range combat (such as tattooing and soot residue) or gunshot wounds in the posterior region of the body. Such findings, sometimes hastily and mistakenly interpreted as suggestive of execution, are largely compatible with real confrontations, both in wooded areas andin densely built-up urban zones. This letter seeks to demonstrate, basedon the relevant literature and forensic experience, that these ballistic patterns are part of the legitimate dynamics of combat and do not constitute isolated evidence of execution.

Introduction

Armed confrontations in forest, jungle, or dense woodland environments present particularities that significantly affect the dynamics of gunfire, the distance between antagonists, and the interpretation of traces found onthe corpse. Irregular topography, dense vegetation, limited visibility, acoustic muffled conditions, and the need for silent progression make encounters with opponents unpredictable, potentially occurring at distances of less than 1 meter. In these situations, instinctive, reactive, or movingshots are common, favoring the formation of tattoos and other typical signsof close-range fire.

In parallel, Brazilian urban operations—in favelas, densely populated areas, areas with overlapping buildings, alleys, narrow lanes, and irregular structures—also impose severe limitations on the field of vision and maneuvering space. Police action in these locations occurs predominantly against **armed groups such as drug traffickers, narcoterrorists, and militias**, whose presence is recognized, notorious, and widely documented. Such environments favor immediate contact, ambushes, and sudden confrontations, in which close-rangeshotsandshotsfrombehindarepossibleandfullycompatiblewitharealclash.

Therefore, the characterization of tattooing, smudging, or the subsequent entry oftheprojectilecannotbeinterpretedinisolationasasignofexecution;itmust be analyzed within its operational and tactical logic.

Operational Context of the Confrontation Operational Dynamics of Confrontations in Forests and Urban Areas

Environments with dense vegetation and haphazardly urbanized communities share critical factors: narrow corridors, uneven cover, blocks of shadow, segmented visibility, and lines of progression that sometimes force police teams to advance toward gunfire whose origin is not immediately identified.

Criminal groups in these regions typically operate in scattered formations, making rapid advance, retreat, and flanking movements, using the terrain and obstacles as cover. Typical behavior observed in videos, police investigations, and operationalreports describes criminals running between structures, ditches, alleys, or tree trunks, alternating firing positions.

Inthiscontext,theoccurrenceofshotsfiredfromnon-frontalangles–lateralor rear – ceases to be an exception and becomes a common characteristic of the theater of operations.

Forest environment

Confrontationsindenseforestareasinvolveoperationalcharacteristicsthat increase the likelihood of close contact:

- extremely short lines of sight;
- densevegetationthatpreventsidentificationoftheopponentuntilthe last moments;
- noise dampening, making it difficult to perceive approachingobjects;
- Police advances in compact and silent formations;
- highprobabilityofsuddenencountersatadistanceoflessthan3 meters.

Studies conducted in jungle operations and in military manuals. (COT/DPF,National Force,FM 90-5– *JungleOperations*) demonstratethat

Insuchenvironments,thefirstshotoftenoccursbetween0.5and3meters.

Dynamics of the forces in conflict

Inthescenariodescribed,theconflictisbetween:

- **Police forces**, wearing dark uniforms, advancing tactically, discreet and coordinated;
- **Armed offenders —** drug traffickers, narcoterrorists, or militia members — who employcamouflage clothing, prior knowledge of the terrain, and ambush techniques.

The combination of low visibility, constant movement, and shortened distances exponentiallyincreases the chance of reactive, instinctive, and short-range shots.

Short-Range and Back stabber Shooting: Natural Behavior in Real-Life Confrontations

Two situations, widely recognized in the literature on combat and criminal forensics, deservehighlighting:

a) Policeoperationagainstapartiallyhiddentarget

The police officer advances while being shot at. The offender, positioned behind obstacles,may only expose part of their body. When moving to new cover, they can be hit from rearangles, even if their back was not turned when the shot was fired. The sudden change ofdirection generates varied ballistic profiles.

b) Theoffenderrunsandshootsbackward.

This is one of the most classic and documented scenarios in the investigation of confrontations.Theoffender,uponnoticingtheadvancingpolice,runsawayandsimultaneouslyfireshis weaponbackward,aiminginaccurately. Thismaneuver,knowninmilitaryliteratureas backward shooting during retreat, causes:

- Unstableshootingmode,
- trunkrotation,
- exposureofthebackatdifferentangles,
- drasticreductionintrajectorycontrol.

When running and shooting backward, the offender often loses balance, abruptly changes their body orientation, and presents their back as the predominant shooting surface. In this pattern, shots from behind are highly compatible with the dynamism of combat.

Inthesecases,forensicexpertsmayfindsubsequentinjurieswithoutany indication of execution:

- physiologicalescapeposition,
- chaoticdispersionofprojectiles,
- absenceofaclose-rangeshooting pattern,
- Consistencywithwitnessaccountsandfootage.

Theseelementspaintatypicalpictureofconfrontation,notexecution

Expert characteristics

Accordingtoclassicforensicmedicineliterature,shotsfiredatcloserange can produce:

- tattooingzone(dermalimpregnationbygunpowderpartially burned);
- smoke;
- singeing;
- Wipehaloandregularentryedges.

ThesefindingsareextensivelydescribedbyGenivalVelosodeFrança,Di Maio, Franchini, and Ribeiro.

Natural operation aloccurrence

Inreal-lifeconfrontations,especiallyinwoodedareasorconfinedurbanenvironments:

- Policeofficersandoffendersmayunintentionallyreducethedistance
- eachother;
- Theattackermaysuddenlyappearfromlessthan2metersaway;
- Shotsareoftenfiredwhileonthemove;
- Weaponsmaybepartiallysupported,tilted,orunstable.

Internationalliteraturehighlightsthatclose-quartersgunfightsproducetattoosevenin situations of legitimate confrontation, without any indication of execution.

Examples from Literature and Real-World Cases International Literature

DiMaioreportsthatshootoutsinconfinedspacesfrequentlyresultintattooing,eveninlawful operations. FBI studies show that about half of police confrontations occur within 2 meters.

Literature and national studies

Brazilianresearchinjungleareasidentifies"pocketsofimmediatecontact,"withshots firedatlessthan1meter.ReportsfromSENASP(NationalPublicSecuritySecretariat) on the Legal Amazon also document such occurrences in genuine confrontations involving heavily armed criminal groups.

Expert experience

Analysesconductedbyvariousforensicmedicalinstitutesshowthatoblique-shots,shots fired at an upward angle, laterally, or shots fired while running can produce atypical gunpowder dispersion patterns, simulating short-range shots even when the shooter is not close to the target.

Expert Assessment:Absence of Evidence of Execution Despite the Location of the Wounds

Characterizing the execution requires objective signs:

- close-rangeorcontactshootingwithahighlyspecificpattern,
- absenceofconfrontationaldynamics,
- staticpositioningofthevictim,
- patternofrepeatedfiringinvitalareasatcloserange.
- operationalandtacticalcontextoftheconfrontation;
- compatibilityofprojectiletrajectorieswithmovement;
- absenceofsignsofphysicalrestraint;
- absenceofevidenceofcontactfiring;
- Relationshipbetweenthepositionofthecorpse,vegetation,anddispersalofcapsules;
- Convergenceofaccounts,evidence,andreconstructionofthescene.

Only the combination of factors allows for technically sound conclusions.

Final Considerations

Forensic science plays a crucial role in preventing misinterpretations and hastyanalysesbasedsolelyoncommonsense.Forestedenvironmentsand areas of precarious urbanization produce highly dynamic confrontations, in whichshotsfiredfromthesideorfrombehind,includingatcloserange,occur as a direct consequence of the movements of those involved.

Theaimofthisreportistocontributetothepublicandtechnicalunderstanding of combat dynamics, reinforcing that shots fired from behind, when placed in a real tactical context and in situations such as fleeing with shots fired backward,donotinthemselvesconstituteevidenceofexecution,butcanbe perfectly compatible with actual armed confrontations.

Conclusion

In confrontations involving security forces and **drug traffickers, narcoterrorists, or militia members**, whether in forest environments or urban

areas, close-range and backfire shootings are entirely possible without automatically implying execution. The dynamics of combat, the topography, the low visibility, and the constant movement of the antagonists make such findings expected and consistent with a real confrontation.

Theexpertanalysismustthereforebecomprehensive,contextual,andwell-founded, avoiding hasty conclusions based on a single ballistic element. Specializedliteratureandaccumulatedexperiencereinforcethattattooing, smudging, and posterior entry of the projectile are conditions frequently present in legitimate confrontations.

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